1994-09

A computer model of the U.S. Navy unrestricted line officer promotion process

Tortora, Robert P.

Monterey, California. Naval Postgraduate School

NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

A COMPUTER MODEL OF THE
THE U.S. NAVY UNRESTRICTED LINE
OFFICER PROMOTION PROCESS

by

Robert P. Tortora

September 1994

Thesis Advisor: P. R. Milch

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	September 1994.	Master's Thesis

4. TITLE AND SUBTITLE A COMPUTER MODEL OF THE U.S. NAVY UNRESTRICTED LINE OFFICER PROMOTION PROCESS (U)

5. FUNDING NUMBERS

6. AUTHOR(S) TORTORA, Robert P.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Postgraduate School
Monterey CA 93943-5000

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE
*A

13. ABSTRACT *(maximum 200 words)*

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14. SUBJECT TERMS Manpower Issues, Officer Promotions			15. NUMBER OF PAGES *129
			16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)

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A COMPUTER MODEL OF THE
U.S. NAVY UNRESTRICTED LINE
OFFICER PROMOTION PROCESS

by

Robert P. Tortora
Lieutenant, United States Navy
B.S.P.S., United States Naval Academy, 1988

Submitted in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE IN OPERATIONS RESEARCH

from the

NAVAL POSTGRADUATE SCHOOL
September 1994

Author: [redacted]
Robert P. Tortora

Approved by: [redacted]
Paul R. Milch, Thesis Advisor

[redacted]
John Hosford, Second Reader

[redacted]
Peter Purdue, Chairman
Department of Operations Research

ABSTRACT

This thesis develops a model that accurately portrays the U.S. Navy Unrestricted Line Officer promotion process. The pertinent aspects of the promotion process have been defined and incorporated in a personal computer based program that is capable of estimating promotion statistics over several years. The program is designed to provide the user with a framework for forecasting promotion statistics over a span of years. This framework is based on the most recent information on officer inventories, continuation rates, and Navy manpower and promotion policy. The program interface allows the user to control all of the values necessary to project promotions; permitting the examination of the effects of diverse input estimates on long term promotion statistics. Model validation was accomplished by running the model over past years promotion cycles and comparing the model results with the actual results. The model was tested using plausible assumptions about officer inventories and current manpower policy to examine the impact of the drawdown on the time it will take to promote.

THESIS DISCLAIMER

The reader is cautioned that computer programs developed in this research may not have been exercised for all causes of interest. While every effort has been made, within the time available, to ensure that the programs are free of computational and logic errors, they cannot be considered validated. Any application of these programs without additional verification is at the risk of the user.

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EXECUTIVE SUMMARY

The Officer Promotion Model utilizes an inter-active input routine that permits the user to specify all of the information necessary to project annual promotions over a range of years. The Officer Promotion Model is written in Borland Turbo Pascal and has been designed to simulate the actual promotion process as closely as possible.

The senior officer promotion process is based on the annual selection of enough officers for promotion to fill expected vacant billets in the senior officer grades. The junior officer promotions are based on the promotion of the eligible officers to the next grade.

The promotion process begins with the promotion of Captains to Admiral to fill the expected vacancies created by Admiral retirements. The process continues consecutively down the grade structure with promotions in each rank to fill vacancies caused by natural attrition and promotion to the next higher grade. These officer promotions, however, are subject to numerous constraints imposed by Congress under the Defense Officer Personnel Management Act of 1982 (DOPMA). These constraints were introduced by Congress to outline the normal career progressions and provide guidelines for the promotion process.

The promotion process described above was broken down into its fundamental elements and systematically analyzed to define its precise structure. From this structure, a personal computer based model of the process was developed. The model has been designed to provide the user with a framework in which promotion statistics can be forecasted over a range of years. This framework was founded on historical data and the Navy estimates for future promotion statistics as well as the drawdown separation programs. The user is tasked with altering this framework based on estimates of officer inventories and projected losses using the same techniques that promotion planners do when performing their part in the promotion process. The model provides the user with a firm foundation to examine the effects of different inputs on projected promotion statistics.

The Officer Promotion Model was successfully tested for accuracy using the most recent complete data available. The goal of this test was to determine the applicability of the model to the promotion process by running the program using the data from a past promotion year and comparing the model results with the actual outcomes.

The Officer Promotion Model was implemented to test the effects of different officer continuation rates on the time it takes to promote to the senior grades using plausible model inputs. The result of these tests indicate that the time it takes to promote will increase as the drawdown continues,

provided that the rates of continuation remain near their historical levels. This result supports the current Navy effort to increase officer losses through several temporary separation programs in order to stabilize the time it takes to promote.

The model of the officer promotion process developed in this thesis is expected to aid Navy planners in estimating long term promotion statistics. This accurate portrayal of the promotion process provides the manpower planner with a beneficial tool for comparing the effects of alternative promotion or retention strategies given current manpower trends on promotions over a span of years.

I. INTRODUCTION

A. THESIS DESCRIPTION AND OBJECTIVES

This thesis provides a model of the United States Navy Unrestricted Line (URL) Officer Promotion Process. Many relevant aspects of the promotion process are assimilated and incorporated into the body of the model in order to most accurately portray the manner in which the promotion process operates.

The objective of this thesis is to develop a computer program that accurately models the current URL Officer Promotion Process and that can be used to predict long range promotion statistics given the current manpower trends and logical variations of these trends. Given the correct planning inputs, this model should serve as an excellent tool for calculating promotion statistics.

B. BACKGROUND

Each year military manpower planners are tasked with the development of a promotion plan for each grade and competitive community. The current fiscal budgetary constraints and the Post Cold War drawdown have tasked the services with the unprecedented challenge of efficiently making budgetary concessions while maintaining a premier fighting force. The planned reductions in force levels caused by the drawdown have

had a significant impact on all of the service communities, particularly due to the need to methodically reduce a military manpower base that had been steadily increasing during the Cold War buildup. The rapid reduction in the number of billets available, combined with the surplus number of personnel remaining in the military have induced the services to reduce the number of accessions and provide incentive and control programs to manage the excess personnel.

In the beginning of the drawdown, the number of sea and shore billets filled by U.S. Navy officers were decreasing at a rate faster than the Navy manpower programs could adjust for without forced separations. This left an excess of Naval Officers at all levels and compelled Navy planners to come up with alternative measures to entice officers to separate in order to meet projected end strengths. Since the Navy has maintained the policy that it will not force personnel out of the system in order to meet projected manpower levels, it has attempted to comply with the force reductions through decreases in accessions, attractive separation and early retirement programs, and selective early retirement boards.

There is a great deal of uncertainty as to the effects of the drawdown and the Navy reduction programs on individual promotion opportunity and promotion prospects. The excesses in the number of officers have a direct impact on the promotions, particularly since the promotion process is based on annual vacancies due to personnel attrition. This model is

intended to provide Navy planners with a tool to help alleviate some of the uncertainty inherent in the Unrestricted Line Officer Community.

C. APPROACH

This thesis addresses the long term forecasting problem in the form of an analytical, personal computer based resource allocation model. The promotion process is broken down into elements that can be systematically analyzed to determine the inherent mathematical structure. From this structure, a PC based model has been developed to simulate the process. This computer model was used to examine the process over several years and will be able to analyze the effects of changing trends in order to provide an effective forecasting tool for Navy planners. Historical data was used to validate this model. Current manpower trends were analyzed using the computer model to predict how they will affect future promotion prospects and determine the need for possibly more rigorous separation or retention policies or other changes to the existing promotion process. In addition, the computer model will be able to analyze possible changes to the current trends; such as plausible increased force reductions or a renewed force buildup, through user changes to the initial model input.

II. THE U.S. NAVY PROMOTION PROCESS

A. POLICY

The Department of the Navy policy is to meet the skill and experience requirements for officers in each grade and competitive category established by the Secretary of the Navy by using a system of competitive selection boards. The promotion system is based on five-year plans designed to meet the following objectives:

(1) Select the numbers of officers to fill projected vacancies to meet authorized strength in each competitive category and grade for the first fiscal year of the plan.

(2) Ensure reasonable career opportunities in each competitive category.

(3) Attain and maintain an all Regular Force on the active-duty list in the grades of O-4 and above.

Boards of experienced officers provide collective judgement and opinion on the quality of officers eligible for promotion.

B. ANNUAL PROMOTION PLAN

The Chief of Naval Operations (CNO) submits to the Secretary of the Navy a five-year promotion plan within 45 days of the proposed convening date of the first promotion

board of the fiscal year promotion cycle. This plan provides an estimate of the number of officers needed in each grade and competitive category to attain authorized strength; the number of officers estimated to be serving in each competitive category for each grade; the number of officers authorized to be on active duty on the last day of each fiscal year for each grade; and the recommended promotion opportunity and projected flow point for each grade and competitive category. The proposed plan also shows the number of officers to be placed in the promotion zone for each grade in each competitive category; the number of officers to be selected in each grade and competitive category to attain proposed promotion opportunity; and any proposed below zone opportunity.

1. Year Zero

The promotion process begins at Year Zero with the promulgation of the desired promotion opportunity and the promotion flow point subject to DOPMA constraints for the fiscal year two years from present. The promotion flow point is determined for the grades O-4 to O-6 by taking the years of service (YOS) of the top officer on the lineal list who was below the last fiscal year promotion zone in each grade.

2. Year One

With the guidelines established by the portion of the promotion plan established in Year Zero, the separate boards convene in Year One to select the individual officers required

to promote to fill the expected vacancies in authorized end strength for each grade for the next fiscal year (Year Two). This process begins with the selection of eligible Captains to Admiral to fill up the predicted vacancies caused by Admiral retirements. This process continues down the ranks with promotions in each grade to fill expected vacancies in predicted end strength caused by natural attrition and selections to the next higher grade for the next fiscal year. Those officers selected for promotion will normally be promoted by the end of the next fiscal year (Year Two in the Annual Promotion Plan). Figure 1 lists the dates of boards integral to the promotion process.

Board Title	Convening Date
Active Duty O-7 Line Selection	November
Active Duty O-6 SERB	December
Active Duty O-5 SERB	December
Active Duty O-6 Line Selection	January
Active Duty O-5 Line Selection	March
Active Duty O-4 Line Selection	May
Active Duty O-4 Line Continuation	July
Active Duty O-3 Line Selection	July

Figure 1 Selection Board Convening Dates

C. DEFENSE OFFICER PERSONNEL MANAGEMENT ACT

The Defense Officer Personnel Management Act of 1982 (DOPMA) was enacted by Congress to set forth legally binding

goals and constraints on the personnel management of military officers. Many of the details of the promotion process are subject to these legal constraints.

The first DOPMA requirement is the fiscal year end strength ceilings for grades Lieutenant Commander (LCDR) and above. This constraint limits the number of senior officers authorized in each grade at the end of the fiscal year. These levels are a function of the total number of officers authorized in a given fiscal year as shown in Figure 2.

DOPMA OFFICER END STRENGTH CEILINGS

Total Number on Active Duty	O-4	O-5	O-6
45,000	9,124	5,776	2,501
48,000	9,565	5,984	2,602
51,000	10,006	6,190	2,702
54,000	10,447	6,398	2,803
57,000	10,888	6,606	2,904
60,000	11,329	6,813	3,005
63,000	11,770	7,020	3,106
66,000	12,211	7,227	3,206
70,000	12,799	7,504	3,341
90,000	15,739	8,886	4,013

Figure 2 DOPMA Strength Ceilings

The next DOPMA requirements are specifications on the individual minimum time in grade required to be eligible to promote to the next grade, the flow point or normal time in service when promotions occur, and the promotion opportunity or percentage of officers in a given zone that must be selected for promotion. These constraints have been

implemented to guarantee some stability in the career paths of military officers and outline the normal career progressions, ensuring that each officer is given sufficient understanding of the career promotion prospects. Figure 3 delineates these requirements for promotion to the given grade.

DOPMA PROMOTION REQUIREMENTS

Grade	Time In Grade	Flow Point	Opportunity
O-6	3 yrs	22 ± 1 yrs	50 ± 10 %
O-5	3 yrs	16 ± 1 yrs	70 ± 10 %
O-4	3 yrs	10 ± 1 yrs	80 ± 10 %
O-3	2 yrs	4 yrs	85 - 100%
O-2	2 yrs	2 yrs	90 - 100%

Figure 3 DOPMA Promotion Requirements

D. EXIT PROGRAMS

In order to meet the forecasted loss of authorized billets due to the drawdown, the Navy has implemented several separation programs aimed at reducing force levels.

1. Selective Early Retirement

Selective Early Retirement (SER) is a tool used by Navy planners primarily during periods of officer strength reductions as a means to reduce the number of senior officers commensurate with reductions in other grades. Officers selected for early retirement are typically those with over twenty years of service that are eligible to retire, but have opted to remain in the service. SER boards have historically

met to select senior officers for early retirement when predicted losses fall short of actual losses in a fiscal year in order maintain end strength.

2. Temporary Early Retirement Authority

Temporary Early Retirement Authority (TERA) is a newly approved program designed to attract officers with at least fifteen years of service to voluntarily retire prior to their normal twenty year retirement eligibility date. These officers receive special retirement benefits commensurate with their grade and time in service. This program is mandatory for Lieutenants and Lieutenant Commanders with over fifteen years of service that have twice failed to promote.

3. Variable Separation Incentive/Special Separation Benefit

The Variable Separation Incentive (VSI) and Special Separation Benefit (SSB) are two temporary alternative incentive programs for officers in selected communities to leave active duty voluntarily prior to retirement eligibility. Both programs are offered on a selected basis to shape the structure of specific communities while reducing overall officer end strength. VSI/SSB are temporary programs authorized by law until the end of fiscal year 1999. Those eligible for these programs are non-medical officers in grades Lieutenant to Commander with six years of service.

The goals of the various Navy separation programs detailed above are listed in Figure 4.

SEPARATION PROGRAM GOALS

	92	93	94	95	96	97	98
SER	350	422	506	400	400	400	400
15-yr Ret	0	1400	422	400	400	400	400
VSI/SSB	0	708	1069	950	967	1199	1006

Figure 4 NAVY Separation Program Goals

E. PROMOTION CYCLE

The promotion cycle begins with the convening of the selection boards in the year prior to the year when promotions are to occur. The promotion planners utilize the current Military Personnel Navy (MPN) Officer Programmed Authorizations (OPA) to determine the beginning strength and end strength of each grade authorized for the fiscal year of the plan. Since it is the actual funding that drives the number of officers, the beginning and end strength calculations are adjusted from the OPA to account for extra billets that are known to be funded or billets that are authorized but not funded. The URL planners also confer with the planners from other Navy communities to ensure that the sum total of all officers in each grade for all applicable Navy communities does not exceed the DOPMA ceilings. These conferences often lead to one community compensating another with its excess billets, allowing the receiving community to

add additional officers to its strength calculations and exceed the OPA.

The promotion planners then calculate the number of losses predicted to occur in the next fiscal year. These losses are calculated by averaging the losses in each grade over the past few cycles and adjusting them to take into account the predictions for retention or separation programs for that fiscal year. The Navy has historically used the SER boards to reduce the number of senior officers when the actual losses realized during the cycle do not meet the predicted losses in order to not exceed the end strength goal. There is no mechanism to adjust for actual losses realized exceeding the predicted losses. In these cases, the accomplished end strength falls below the end strength goal and the planners make up for the shortfall by promoting more officers during the next fiscal year cycle.

Each selection board must then determine the number of promotions that must occur to meet the end strength goal. The predicted losses are subtracted from the beginning strength to determine the number of officer continuations in that grade. The selections to the next higher grade, determined in the previous selection board, are then subtracted from the continuation estimate to give the number of actual officers in that grade. Subtracting this Figure from the end strength

goal and adding any predicted accessions yields the number of promotions required for that grade.

Given the number of promotions required, the selection boards then determine the size of the promotion zone from the promotion opportunity promulgated in Year Two by the Secretary of the Navy. The promotion zone size is equal to the number of promotions required divided by the promotion opportunity. The promotion zone is then delineated by the name and lineal number of the officers at the top and bottom of the zone. This group of officers is known to be in zone, while those senior to the officer at the top of the zone or junior to the officer at the bottom of the zone are above zone or below zone, respectively.

The individual selection boards deliberate to select the officers in zone and a small percentage of those above or below zone to promote in order to fulfill the promotion requirement. This process is repeated for Captains down to Lieutenant Commanders. The Lieutenant and Lieutenant Junior Grade promotions are not driven by the vacancies in grade since they are not subject to DOPMA end strength ceilings. The cycle is completed when all grade selections have been accomplished by the selection boards.

III. MATHEMATICAL FORMULATION

A. PROMOTION PROCESS PROBLEM STATEMENT

The fundamental U.S. Navy URL Officer Promotion process can be viewed as a multi-period inventory flow process without complicating constraints. The promotion planners must annually select enough officers for promotion to fill the expected vacant billets in order to meet authorized end strengths in the grades of LCDR, CDR, and CAPT. The estimated aggregate grade totals and projected losses are used to determine these selections. Figure 5 details this process.

OFFICER PROMOTION PROCESS FORMULATION

INDICES

g - Grade; g = 1,2,3,4,5,6,7
z - Fiscal Year

DATA

$OA_{g,z}$ Officer AUTHORIZATIONS by grade and fiscal year
$LOSS_{g,z}$ Total Number of LOSSES by grade and FY
$ACC_{g,z}$ Number of ACCESSIONS by grade in FY z
$OPP_{g,z}$ Promotion OPPORTUNITY to grade g = 2,3 in FY z
$ELIG_{g,z}$ Total number ELIGIBLE for promotion in g = 1,2 in FY z

VARIABLES

$PROMO_{gz}$ Number of PROMOTIONS by grade

FORMULATION

$$PROMO_{7,z} = OA_{7,z} - OA_{7,(z-1)} + LOSS_{g,(z-1)}$$
$$PROMO_{6,z} = OA_{6,z} - OA_{6,(z-1)} + LOSS_{6,(z-1)} + PROMO_{7,z} + ACC_{gz}$$
$$PROMO_{5,z} = OA_{5,z} - OA_{5,(z-1)} + LOSS_{5,(z-1)} + PROMO_{6,z} + ACC_{gz}$$
$$PROMO_{4,z} = OA_{4,z} - OA_{4,(z-1)} + LOSS_{4,(z-1)} + PROMO_{5,z} + ACC_{gz}$$
$$PROMO_{3,z} = ELIG_{2,z} \times OPP_{3,z}$$
$$PROMO_{2,z} = ELIG_{1,z} \times OPP_{2,z}$$

Figure 5 Mathematical Formulation

The promotion boards subsequently apply these selection numbers to the individual grades and select by name the actual officers to be promoted for LCDR to CAPT. This individual officer selection process is complicated by the constraints imposed by DOPMA regulating the promotion opportunities, flow points, and the proportion of below zone promotions allowed. The distribution of promotions is detailed in Figure 6.

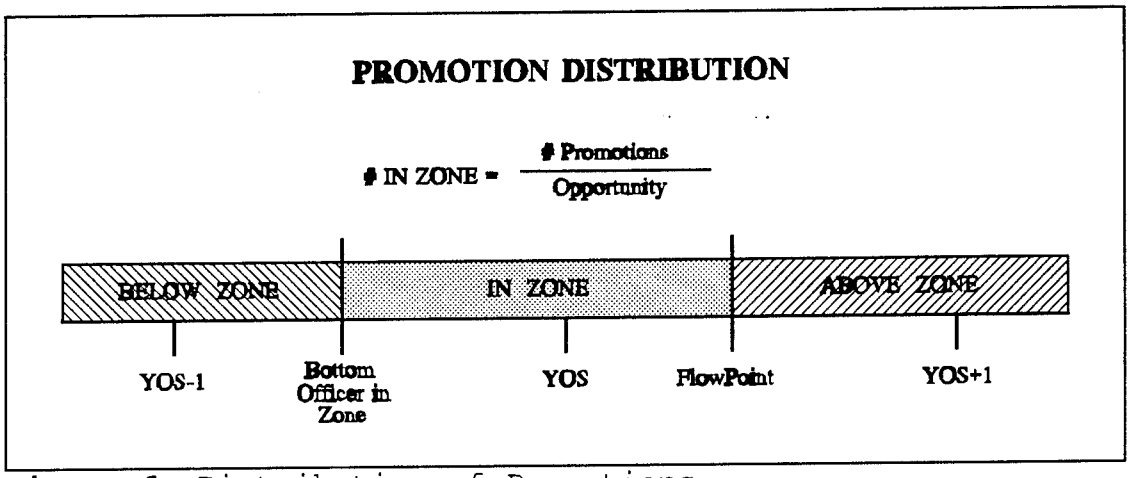

Figure 6 Distribution of Promotions

The majority of the promotees will come from those officers within the promotion zone that are eligible, while a small percentage of promotees will be from above and below the promotion zone. The flow point for the following year is generally determined by adding one year to the years of service of the top officer below zone.

IV. MODEL DEVELOPMENT AND DESCRIPTION

A. DESCRIPTION OF MODEL

The Officer Promotion Model is an inter-active, user friendly program written in the computer language Turbo Pascal that can be run on any IBM-compatible personal computer. Turbo Pascal is the universally available personal computer version of Standard Pascal marketed by Borland. The model is designed to simulate the actual promotion process as closely as possible. User inputs to the model specify the values that will be used as the foundations for the promotion simulation.

The Officer Promotion Model incorporates a loss projection routine that applies year to year continuation rates to the beginning officer inventory for calculation of the promotions required to fill the vacant billets and achieve the desired ending inventory. An initial user input of the cross-sectional starting year officer inventory by grade and years of service is used to track the underlying effects of the annual promotions on officer inventory for the first year of the forecasting period. The calculated promotions are distributed within each grade and then added to or subtracted from the logical officer flow of the distributed starting year inventory to provide the projected ending inventory. This process is then replicated with the projected ending inventory

replacing the starting year inventory for the junior officer grades. Subsequent senior grade promotions are solely based on the authorized beginning and end strengths and the predicted losses for a given promotion year.

The code for the main Officer Promotion Model program and the program output module are located in Appendices A and A.1.

B. GLOBAL VARIABLES

The Officer Promotion Model uses two main global variables to store and manipulate the data. The GRADE variable is a table of records that stores all of the necessary data for a given grade across the range of model years. The STOCK variable is a thirty one-by-six table of records that stores all of the necessary attributes for the model that are characterized by a given grade and years of service for the current model year. The dimensions of the STOCK variable reflects the structure of the officer inventory. A sample layout of these model variables can be seen in Figure 7 and Figure 8.

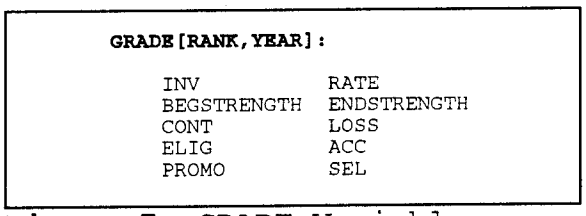

Figure 7 GRADE Variable

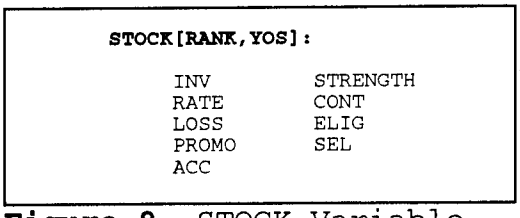

Figure 8 STOCK Variable

The sum across the span of years of service of all the like attributes in the cross-sectional STOCK matrix for a given grade generates the value of the analogous field in the GRADE variable. Figure 9 is an example of the relationship between the GRADE and STOCK variables for the grade O-1.

VARIABLE	INV	RATE	LOSS	CONT	ACC
STOCK[RANK,YOS]					
STOCK[1,0]	1945	96.0	78	1867	2074
STOCK[1,1]	2027	96.4	73	1954	19
STOCK[1,2]	25	75.0	6	19	1
STOCK[1,3]	1	50.0	0	1	0
STOCK[1,4]	1	0.0	1	0	0
GRADE[1,YEAR]	3999	96.05	158	3841	2094

Figure 9 Relationship of STOCK Variable to GRADE Variable

C. DEFAULT SETTINGS

The Officer Promotion Model automatically provides settings for all of the necessary inputs and routines. These settings are characterized as historical settings and default user settings. The historical settings are drawn from the published results of past promotion boards and observations made on the data from the 1990 through 1993 promotion cycles. If desired, the user can change the historical settings. This can be done only by changing their values in the main program code. On the other hand, the default user settings are those that are alterable during program execution by user input.

D. USER INPUTS

The data which the user must initially provide in order to run the model consists of an initial officer inventory and the continuation rates for all grades classified by rank and years of service in the form of a computer text file. Examples of the required data derived from the Officer Master File (OMF) for the fiscal years 1990 to 1994 are provided in Appendix B.

The user has the option of changing the default settings during the course of the program run. The default beginning strength and end strength settings are taken from the 1992 to 1994 OPA figures for the Unrestricted Line community. Strengths for the years 1995 through 1999 are drawn from the 1994 OPA five year plan estimates. The default distribution of accessions and senior officer inventory set initially in the STOCK matrix were calculated using the historical distribution data derived from the OMF included in Appendix B. The default continuation rates are the averages of the FY 1992 and 1993 OMF rates adjusted to reflect current retention policies. These average rates have been modified to take into account the additional losses expected due to the separation programs. The default promotion opportunity is taken from the most recent Navy estimates.

E. SAMPLE RUN

Upon commencement of program run, the Officer Promotion Model initializes the default values for the continuation rates and the cross-sectional distribution of accessions to all grades and years of service. The historical and predicted values for flow points, promotion opportunity, number of promotions, cumulative number of accessions, and the OPA beginning and end strength are also registered by the program as default values.

During program data initialization, the user defined cross-sectional starting year officer inventories and continuation rates are read into the STOCK matrix and the cumulatives are totaled and stored in the GRADE matrix. These values are assumed to be actual and are used as the baseline for tracking of the effects of the first model year predicted promotion results.

Following program data initialization, the model selects the default values for the beginning and end strengths, accessions, and the estimated continuation rates required to calculate the promotions for the first year of the forecast. A distinction must be made between the calculation of senior and junior officer promotions. During each year of the program run, the estimated senior officer continuation rates and strengths are used as the planning estimates for calculation of the senior officer promotions. The promotion

cycle calculations for the senior officer promotions are all based on these planned estimates. The senior officers inventories are distributed from the beginning strengths based on the historical arrangement of senior officers across the years of service within a grade. The user has the option to adjust the resulting YOS inventories. Junior officer promotions are based on the user provided initial inventories. These junior officer inventories are updated at the end of each cycle by the balancing of the estimated yearly junior officer flow to and from these grades. The updated inventories are then used in the next cycle year promotion calculations.

Upon completion of data initialization, the user is subsequently provided a view of the cumulative grade values as shown in Figure 10 and offered the option of making changes to the senior strengths, O-6 continuation rate, total accessions, and promotion opportunity.

**** URL Officer Promotion Model ****

CURRENT YEAR (1992) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	5442	N/A	96.03	216	5226	2094		
O-2	6743	N/A	89.89	682	6061	29	2.00	95.00
O-3	13900	N/A	84.09	2212	11688	17	4.00	95.00
O-4	6300	6352	91.62	528	5772	14	10.25	80.00
O-5	4100	3914	90.66	383	3717	7	15.17	70.00
O-6	1841	1830	81.58	339	1502	4	21.50	55.00

Figure 10 Cumulative Display

During this section of the model run it is recommended that the user refine the default inputs to reflect as realistically as possible the inputs that would be used by planners during that promotion year. Changes made to the cumulative senior grade beginning strengths or the total number of accessions will result in concurrent changes to the cross-sectional estimates that are distributed from these values based on their historical dispersion throughout the grades. The user can make adjustments to these distributed values or the cross-sectional continuation rates by switching to the stock display shown in Figure 11.

**** URL Officer Promotion Model ****

FISCAL YEAR 1992 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	15	439	90.82	40	399	0
1	0	100.00	0	0	0	16	278	92.15	22	256	0
2	0	100.00	0	0	0	17	247	93.53	16	231	0
3	1	100.00	0	1	0	18	230	84.23	36	194	0
4	2	100.00	0	2	0	19	211	20.17	168	43	0
5	2	100.00	0	2	1	20	40	6.76	37	3	0
6	3	100.00	0	3	1	21	2	0.00	2	0	0
7	4	83.33	1	3	1	22	0	0.00	0	0	0
8	5	100.00	0	5	2	23	0	0.00	0	0	0
9	30	95.95	1	29	3	24	0	0.00	0	0	0
10	745	96.45	26	719	3	25	0	0.00	0	0	0
11	1109	95.95	45	1064	3	26	0	0.00	0	0	0
12	1062	94.94	54	1008	0	27	0	0.00	0	0	0
13	994	96.46	35	959	0	28	0	0.00	0	0	0
14	882	96.49	31	851	0	29	0	0.00	0	0	0
15	439	90.82	40	399	0	30	0	0.00	0	0	0

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	6300	91.62	528	5772	14

Figure 11 Cross-Sectional Display

The program proceeds once the user is satisfied with the inputs for all grades. Employing these values as the basis for the promotion cycle, the individual grade promotion totals are calculated by the model as formulated in Figure 5. Lineal lists for all the officers estimated to be continuing service from the distribution of officers within the grades O-3 to O-5 are subsequently made and the promotion zone is delineated on each of these lists based on the flow point and an estimate of the number of officers eligible for promotion.

For the creation of the lineal list, it is assumed that the officers in a given grade and years of service are uniformly distributed across that YOS. Therefore, the top officer within the zone is determined by matching the promotion flow point to the officer in the YOS whose position is closest to the flow point. The size of the zone is adjusted to account for officers that are within the zone by their YOS but not eligible due to prior service or other reasons by removing a small proportion of them from eligibility within the zone. Likewise, a similar proportion of officers that are above the zone by their YOS are eligible and added to the zone to balance this adjustment. The bottom officer in the zone is then calculated by adding the adjusted size of the zone to the lineal number of the top officer in zone. Using the previously calculated number of promotions, the promotions to a given grade are distributed to above, below, and in zone categories; with the majority of promotions

assigned coming from within the zone. Since the number of senior officer promotees that decline promotion or attrite has historically been negligible, it is assumed that the attrition rate is zero among senior officer promotees. Conversely, a small percentage of junior officer promotees have historically been lost due to attrition. The junior officer promotions are determined by multiplying the total number of eligible officers at the beginning of the cycle by the promotion opportunity and subtracting a small percentage of these to account for attrition losses among promotees.

The inventories of the initial cross-sectional stock matrix are updated by subtracting the actual losses to form a residual matrix of continued officers. The calculated promotions detail where these continued officers flow to at the end of the cycle. Addition of the given accessions, the subtraction of the expected losses, and manipulation of the promotion flow to and from these grades within the inventory matrix results in the projected end of year inventory which replaces the initial starting inventory for the next cycle for the junior officer inventories.

At the end of this process, the model displays all of the promotion results on the screen. The above operation is replicated with each promotion year until the user exits the program.

F. MODEL OUTPUT

Each forecast year during the program run, the Officer Promotion Model writes the cumulative totals, stock totals, and the model promotion results for each grade to an output file. These files may be viewed by the user through any word processor capable of displaying text files.

V. MODEL IMPLEMENTATION AND RESULTS

A. MODEL VALIDATION

The Officer Promotion Model was tested using the most recent complete data available. This data consisted of the starting inventory and one year continuation rates for FY 1993, as well as the OPA strengths and the actual promotion planning inputs and results. The goal of this test was to verify the applicability of the model to the promotion process by running the program for one cycle and comparing the model results with the actual outcomes for FY 1993. The model was executed using the FY 1993 data as the actual starting inventory and continuation rates. The default OPA beginning and end strengths were used and the estimated continuation rates were adjusted to reflect the planned losses for that cycle. Figure 12 summarizes the results of this test.

FY 1993 MODEL VALIDATION RESULTS

	PROMOTIONS		FY 94 INVENTORY		FY94 FLOW POINT (yrs)	
GRADE	MODEL	ACTUAL	MODEL	ACTUAL	MODEL	ACTUAL
O-6	389	389	1858	1795	20.90	21.00
O-5	721	722	3895	3766	15.18	15.17
O-4	876	878	5695	5843	10.54	10.50
O-3	3065	3236	13265	13310	4.0	4.0
O-2	2639	3023	5818	5888	2.0	2.0
O-1	N/A	N/A	4681	4667	N/A	N/A

Figure 12 Model Validation Results

The differences between the FY 94 model inventories and the actual inventories for the grades O-3 through O-6 reflect officers that were promoted to the next higher grade during the cycle whose promotions were delayed one day (to the first day of the new fiscal year) in order to meet the end strength constraints. This fairly common manpower planning procedure, known as a "bow-wave" is not incorporated in the model. The difference between the number of promotions estimated by the model and the actual number of promotions to O-2 and O-3 are the result of the losses that were estimated to occur by the model. The actual number of promotions that are published by the Navy do not include these losses.

Comparing the outcomes of this validation run to the actual promotion results while taking into account the above discrepancies demonstrates that the model proves to be as adequate a representation of the promotion process as can be expected. A parallel test was conducted using the FY 1994 starting inventory and estimated continuation rates with satisfactory results. The model output for the two validation runs can be found in Appendix C.

B. MODEL EMPLOYMENT

The Officer Promotion Model was used to estimate the promotion prospects up to the end of the century given the current Navy estimates for flow points, promotion opportunity, and the April 1994 OPA five year plan strengths. Two separate

runs with differing continuation rates were administered in order to measure the effects of conservative loss estimates against less conservative estimates for comparison purposes. The loss estimates of Model Run I were derived by slightly lowering the historical average continuation rates for the senior grades. Model Run II incorporated even lower continuation rates. The continuation rates used in the two model runs are specified in Figure 15 on page 30. Figure 13 lists the model run settings that were employed.

O-6 INPUTS

FY95 FLOW POINT 21 yrs 3 mos

FY	BEGIN STRENGTH	END STRENGTH	PROMOTION OPPORTUNITY
1995	1710	1698	55%
1996	1693	1661	50%
1997	1661	1625	50%
1998	1625	1574	50%
1999	1574	1580	50%

O-5 INPUTS

FY95 FLOW POINT 15 yrs 4 mos

FY	BEGIN STRENGTH	END STRENGTH	PROMOTION OPPORTUNITY
1995	3653	3599	70%
1996	3653	3555	70%
1997	3555	3422	70%
1998	3422	3320	70%
1999	3320	3331	70%

O-4 INPUTS

FY95 FLOW POINT 10 yrs 3 mos

FY	BEGIN STRENGTH	END STRENGTH	PROMOTION OPPORTUNITY
1995	5736	5634	70%
1996	5602	5431	70%
1997	5431	5214	70%
1998	5214	5075	70%
1999	5075	5065	70%

Figure 13 Model Implementation Settings

The projection begins with the 1995 promotion cycle (most recent) with an estimate of the starting inventory and the continuation rates for FY 1995. The initial flow points and promotion opportunities match those used in the FY 1995 cycle.

The continuation rates utilized during the model runs incorporate a consolidation of the average expected rate of continuation of FY 1992 and FY 1993 with the goals of the retention programs. It is assumed that the continuation rates for any grade are fairly constant over a range of years. However, implementation of different retention policies during any year within that range will have a corresponding effect on those continuation rates.

For example, the continuation rate for O-4 was 92.9 percent prior to initiation of the 15 year early retirement program and the VSI/SSB programs. Since the model begins forecasting after these programs have been introduced in 1993 and 1994, the average continuation rate for O-4 exercised in the Model Run I is reduced to approximately 92 percent to reflect an estimate of the impact of these retention programs. A less conservative estimate of 91.6 percent is used to attain more losses in the Model Run II. The retention program reductions anticipated by the Navy during the model employment years are fairly uniform (see Figure 4), therefore the continuation rates exercised in the two model implementations are held constant.

C. MODEL RESULTS

The employment of the Officer Promotion Model using conservative continuation rates in Model Run I and decreased continuation rates in Model Run II resulted in the promotion flow points listed in Figure 14.

GRADE	PROMOTION FLOW POINT 1995	1996	1997	1998	1999
O-6	**21yrs 3mos**	**21yrs 5mos**	**21yrs 8mos**	**Unknown**	**Unknown**
I	21yrs 3mos	21yrs 5mos	21yrs 2mos	21yrs 2mos	21yrs 3mos
II	*21yrs 3mos*	*21yrs 5mos*	*21yrs 1mos*	*21yrs 1mos*	*21yrs 1mos*
O-5	**15yrs 4mos**	**15yrs 4mos**	**15yrs 8mos**	**Unknown**	**Unknown**
I	15yrs 4mos	15yrs 4mos	15yrs 2mos	15yrs 3mos	15yrs 4mos
II	*15yrs 4mos*	*14yrs 11mos*	*14yrs 11mos*	*15yrs*	*14yrs 11mos*
O-4	**10yrs 3mos**	**10yrs 5mos**	**10yrs 8mos**	**Unknown**	**Unknown**
I	10yrs 3mos	10yrs 5mos	10yrs 3mos	10yrs 6mos	10yrs 7mos
II	*10yrs 3mos*	*10yrs 2mos*	*10yrs 2mos*	*10yrs 4mos*	*10yrs 4mos*

NOTE: **Bold figures indicate Navy estimates.**
I indicates result from first model run (Conservative rates).
II indicates result from second model run (Decreased rates).

Figure 14 Forecasted Promotion Flow Points

This result shows that the promotion flow points, with the exception of a decrease from 1996 to 1997, will begin to increase as the drawdown continues (as predicted by the Navy) so long as the continuation rates for the senior grades remain conservative as demonstrated in the Model Run I. Comparing the flow point results of the conservative model run with the Navy estimates indicates that the Navy most likely used even more conservative continuation rates than those used in model Run I to forecast a more extreme shift to longer promotion

flow points. The less conservative rates used in the Model Run II demonstrate a different effect on the direction of flow point shift. This outcome would be due to a corresponding increase in the number of promotions resulting from increased losses due to lower continuation rates. This result supports and justifies the current Navy effort to increase losses through the new retention/separation programs in order to maintain stability in the time it takes to promote those officers that remain in the service.

Figure 15 lists the forecasted number of promotions expected during each year of the two model runs. The effect of the increased number of losses on the number of promotions due to the lower continuation rates is apparent in the tables.

MODEL IMPLEMENTATION RESULTS

	O-6 PROMOTIONS		O-5 PROMOTIONS		O-4 PROMOTIONS	
	RUN I	RUN II	RUN I	RUN II	RUN I	RUN II
RATE	84.1%	83.0%	90.5%	89.6%	92.0%	91.6%
1995	228	228	748	748	1198	1198
1996	262	281	503	556	765	837
1997	253	271	451	501	651	720
1998	232	250	446	496	706	776
1999	281	299	600	651	978	1049

Figure 15 Forecasted Number of Promotions

The outputs from the two model implementation runs are available in appendices D and D.1.

VI. CONCLUSION

This thesis developed a computer model of the U.S. Navy URL Officer promotion process. The Officer Promotion Model incorporates the fundamental characteristics of the officer promotion process and is capable of providing legitimate results based on user inputs.

The model was implemented using plausible assumptions about senior officer continuation rates to examine the impact of the drawdown on the time it will take to promote. It is evident from the model implementation runs that the drawdown will have a detrimental effect on the time it takes to promote to the senior grades. The net effect of the force reductions on the flow points is clearly dependent on the success of the Navy retention/separation programs.

It is expected that the Officer Promotion Model could serve as an efficient tool for examining the estimated long term effects of promotion polices and retention/separation programs. Given the appropriate model inputs over a range of years, the model provides preliminary estimates of the results of current policy which subsequently could be used by the manpower planner. As a result, this model is an effective tool for personnel planners desiring to alleviate some of the uncertainty about promotion prospects inherent in the Unrestricted Line Officer Community.

A. AREAS FOR FUTURE STUDY

An area for future study would be the refinement of the Officer Promotion Model to use moving averages to calculate an updated estimate for the distribution of senior officers for use in the model. This effort would be advantageous to the user because it would provide a more accurate representation of where the senior officers range across the years of service based on the model promotion results and personnel flow rather than solely on the FY 1992 and FY 1993 averaged distributions that were utilized; alleviating the requirement of the user to anticipate and adjust the inventories.

Another useful application of the Officer Promotion Model would be the refinement of the fundamental structure of the model as outlined in this thesis to take into account personnel flow through a range of years from a fixed starting year for all grades vice the junior grades. This would model both the promotion process and the entire flow of personnel over a forecast period. The effort would provide the manpower planner with a method to test the long term effects of different retention/separation goals and accession/promotion policies through the use of the model. It would provide a means to track annual officer inventories to ensure that current manpower strategy is adequate to meet the expected demands of the future.

APPENDIX A PROGRAM CODE

```
Author: Robert P. Tortora
Written: September 1994

program OfficerPromotionProcess;

uses CRT,OPM;

var OLDSTOCK:ArrayType;
var NEWSTOCK:NewType;

var GRADE:GradeArray;
var DATA:DataArray;
var LIST,TOP,HIGH,BOTTOM : NodePOINT;

type StructureType = array[1..7,0..30] of real;
var  DistACC,DistRATE,DistGRADE: StructureType;

var RANK,YEAR,YOS,FirstYEAR:integer;
var ANSWER,REPLY,RESPONSE:char;
var OUTFILE:text;
var DONE : boolean;

{**********************   PROCEDURE DECLARATIONS   **********************}
{************************************************************************}

function CheckInteger : integer;
{Verifies the input of an integer to prevent system error.}

var INPUT:integer;

begin
{$I-}
  readln(INPUT);
  while (SYSTEM.IOResult<>0) do begin
    write('INCORRECT FORMAT.  PLEASE TRY AGAIN.');
    readln(INPUT);
  end;
{$I+}
CheckInteger:=INPUT;
end;

{************************************************************************}

function CheckReal : real;
{Verifies the input of a real number to prevent system error.}

var INPUT:real;

begin
{$I-}
  readln(INPUT);
  while (SYSTEM.IOResult<>0) do begin
    write('INCORRECT FORMAT.  PLEASE TRY AGAIN.');
    readln(INPUT);
  end;
{$I+}
CheckReal:=INPUT;
end;

{************************************************************************}

procedure InitializeDistributions(var DistACC,DistRATE,DistGRADE:StructureType;
                                  var NEWSTOCK:NewType);

{Sets up the default values for the relative distribution of accessions and strengths and the
default continuation rates by grade and YOS.}

var R,Y:integer;
```

```
begin
  for R := 1 to 6 do begin
    for Y := 0 to 30 do begin
      DistACC[R,Y]:=0;
      DistRATE[R,Y]:=0;
      DistGRADE[R,Y]:=0;
      NEWSTOCK[R,Y].GRADE:=R;       NEWSTOCK[R,Y].YOS:=Y;
      NEWSTOCK[R,Y].INV:=0;         NEWSTOCK[R,Y].PINV:=0;
    end;
  end;
  DistACC[1,0]:=0.9580;  DistACC[2,0]:=0.0004;  DistACC[3,0]:=0.0007;
  DistACC[1,1]:=0.0086;  DistACC[2,1]:=0.0099;  DistACC[3,1]:=0.0002;
  DistACC[1,2]:=0.0003;  DistACC[2,2]:=0.0009;  DistACC[3,2]:=0.0003;
                         DistACC[2,3]:=0.0012;  DistACC[3,3]:=0.0002;
                         DistACC[2,4]:=0.001;   DistACC[3,4]:=0.001;
                                                DistACC[3,5]:=0.0004;
                                                DistACC[3,6]:=0.0009;
                                                DistACC[3,7]:=0.0008;
                                                DistACC[3,8]:=0.001;
                                                DistACC[3,9]:=0.001;
                                                DistACC[3,10]:=0.0011;
                                                DistACC[3,11]:=0.0003;
                                                DistACC[3,12]:=0.0002;
  DistACC[4,4]:=0.0002;
  DistACC[4,5]:=0.0003;  DistACC[5,8]:=0.0002;  DistACC[6,20]:=0.0003;
  DistACC[4,6]:=0.0003;  DistACC[5,9]:=0.0002;  DistACC[6,21]:=0.0003;
  DistACC[4,7]:=0.0004;  DistACC[5,10]:=0.0002; DistACC[6,22]:=0.0003;
  DistACC[4,8]:=0.0010;  DistACC[5,11]:=0.0002; DistACC[6,23]:=0.0003;
  DistACC[4,9]:=0.0012;  DistACC[5,12]:=0.0004;
  DistACC[4,10]:=0.0013; DistACC[5,13]:=0.0006;
  DistACC[4,11]:=0.0013; DistACC[5,14]:=0.0005;
  DistACC[4,12]:=0.0002; DistACC[5,15]:=0.0005;
  DistACC[4,13]:=0.0002; DistACC[5,16]:=0.0003;
  DistACC[4,14]:=0.0002; DistACC[5,17]:=0.0003;
  DistACC[4,15]:=0.0002; DistACC[5,18]:=0.0004;


  DistRATE[1,0]:=0.9601; DistRATE[2,0]:=0.7500; DistRATE[3,0]:=1.0000;
  DistRATE[1,1]:=0.9641; DistRATE[2,1]:=0.9381; DistRATE[3,1]:=1.0000;
  DistRATE[1,2]:=0.7500; DistRATE[2,2]:=0.9496; DistRATE[3,2]:=1.0000;
  DistRATE[1,3]:=0.5000; DistRATE[2,3]:=0.8654; DistRATE[3,3]:=0.8670;
                         DistRATE[2,4]:=0.6841; DistRATE[3,4]:=0.8550;
                         DistRATE[2,5]:=0.5000; DistRATE[3,5]:=0.8860;
                                                DistRATE[3,6]:=0.8480;
                                                DistRATE[3,7]:=0.7920;
                                                DistRATE[3,8]:=0.8540;
                                                DistRATE[3,9]:=0.9300;
                                                DistRATE[3,10]:=0.8020;
                                                DistRATE[3,11]:=0.2400;
                                                DistRATE[3,12]:=0.3887;
                                                DistRATE[3,13]:=0.6251;
                                                DistRATE[3,14]:=0.5000;
  DistRATE[4,1]:= 1.0000;
  DistRATE[4,2]:= 1.0000;
  DistRATE[4,3]:= 1.0000; DistRATE[5,3]:= 1.0000;
  DistRATE[4,4]:= 1.0000; DistRATE[5,4]:= 1.0000;
  DistRATE[4,5]:= 1.0000; DistRATE[5,5]:= 1.0000;
  DistRATE[4,6]:= 1.0000; DistRATE[5,6]:= 1.0000;
  DistRATE[4,7]:= 0.8333; DistRATE[5,7]:= 1.0000;
  DistRATE[4,8]:= 1.0000; DistRATE[5,8]:= 1.0000;
  DistRATE[4,9]:= 0.9595; DistRATE[5,9]:= 1.0000;
  DistRATE[4,10]:=0.9645; DistRATE[5,10]:=1.0000;
  DistRATE[4,11]:=0.9595; DistRATE[5,11]:=1.0000;
  DistRATE[4,12]:=0.9494; DistRATE[5,12]:=1.0000;
  DistRATE[4,13]:=0.9646; DistRATE[5,13]:=0.9565;
  DistRATE[4,14]:=0.9649; DistRATE[5,14]:=0.9770;
  DistRATE[4,15]:=0.9082; DistRATE[5,15]:=0.9925;
  DistRATE[4,16]:=0.9215; DistRATE[5,16]:=0.9845;
  DistRATE[4,17]:=0.9353; DistRATE[5,17]:=0.9821;
  DistRATE[4,18]:=0.8423; DistRATE[5,18]:=0.9570;
  DistRATE[4,19]:=0.2017; DistRATE[5,19]:=0.8676;
  DistRATE[4,20]:=0.0676; DistRATE[5,20]:=0.8596;
                          DistRATE[5,21]:=0.7832;
                          DistRATE[5,22]:=0.5762;
                          DistRATE[5,23]:=0.6013;
                          DistRATE[5,24]:=0.5340;
```

```
                          DistRATE[5,25]:=0.2002;
                          DistRATE[5,26]:=0.4002;
                          DistRATE[5,27]:=0.5000;
                          DistRATE[5,28]:=0.5000;

  DistGRADE[1,0]:=0.4724; DistGRADE[2,0]:=0.0002;  DistGRADE[3,0]:=0.0001;
  DistGRADE[1,1]:=0.5217; DistGRADE[2,1]:=0.0123;  DistGRADE[3,1]:=0.0001;
  DistGRADE[1,2]:=0.0056; DistGRADE[2,2]:=0.4699;  DistGRADE[3,2]:=0.0002;
  DistGRADE[1,3]:=0.0003; DistGRADE[2,3]:=0.4950;  DistGRADE[3,3]:=0.0010;
                          DistGRADE[2,4]:=0.0217;  DistGRADE[3,4]:=0.1991;
                          DistGRADE[2,5]:=0.0008;  DistGRADE[3,5]:=0.1894;
                          DistGRADE[2,6]:=0.0001;  DistGRADE[3,6]:=0.1772;
                                                   DistGRADE[3,7]:=0.1610;
                                                   DistGRADE[3,8]:=0.1231;
                                                   DistGRADE[3,9]:=0.1015;
                                                   DistGRADE[3,10]:=0.0407;
                                                   DistGRADE[3,11]:=0.006;
                                                   DistGRADE[3,12]:=0.0004;
                                                   DistGRADE[3,13]:=0.0001;
                                                   DistGRADE[3,14]:=0.0001;
  DistGRADE[4,3]:= 0.0002;
  DistGRADE[4,4]:= 0.0003;
  DistGRADE[4,5]:= 0.0003;
  DistGRADE[4,6]:= 0.0005;
  DistGRADE[4,7]:= 0.0009;
  DistGRADE[4,8]:= 0.0012; DistGRADE[5,8]:= 0.0003;
  DistGRADE[4,9]:= 0.0047; DistGRADE[5,9]:= 0.0004;
  DistGRADE[4,10]:=0.1016; DistGRADE[5,10]:=0.0004;
  DistGRADE[4,11]:=0.1868; DistGRADE[5,11]:=0.0005;
  DistGRADE[4,12]:=0.1891; DistGRADE[5,12]:=0.0008;
  DistGRADE[4,13]:=0.1590; DistGRADE[5,13]:=0.0021;
  DistGRADE[4,14]:=0.1460; DistGRADE[5,14]:=0.0078;
  DistGRADE[4,15]:=0.0703; DistGRADE[5,15]:=0.1133;
  DistGRADE[4,16]:=0.0352; DistGRADE[5,16]:=0.1567;
  DistGRADE[4,17]:=0.0339; DistGRADE[5,17]:=0.1576;
  DistGRADE[4,18]:=0.0351; DistGRADE[5,18]:=0.1600;
  DistGRADE[4,19]:=0.0303; DistGRADE[5,19]:=0.1448;
  DistGRADE[4,20]:=0.0052; DistGRADE[5,20]:=0.1242;
  DistGRADE[4,21]:=0.0003; DistGRADE[5,21]:=0.0634;
                           DistGRADE[5,22]:=0.0295;
                           DistGRADE[5,23]:=0.0180;
                           DistGRADE[5,24]:=0.0123;
                           DistGRADE[5,25]:=0.0051;
                           DistGRADE[5,26]:=0.0013;
                           DistGRADE[5,27]:=0.0009;
                           DistGRADE[5,28]:=0.0009;
end;

{*************************************************************************}

procedure InitializeData (var DATA:DataArray;var GRADE:GradeArray);

{Sets up the default values for the historical and predicted promotion opportunity, flow
points, beginning and end strengths, accessions, and number of promotions. Also zeroes out
the record entries in the GRADE variable.}

var R,Y:integer;

begin
  for Y := 1990 to 1999 do begin
    DATA[Y].O2FP:=2.0;          DATA[Y].O2OPP:=0.95;
    DATA[Y].O3FP:=4.0;          DATA[Y].O3OPP:=0.95;
    DATA[Y].O7PROMO:=25;
  end;

  DATA[1990].O4FP:=10.0;          DATA[1990].O4OPP:=0.80;
  DATA[1991].O4FP:=10+1/12;       DATA[1991].O4OPP:=0.80;
  DATA[1992].O4FP:=10+3/12;       DATA[1992].O4OPP:=0.80;
  DATA[1993].O4FP:=10+5/12;       DATA[1993].O4OPP:=0.80;
  DATA[1994].O4FP:=10+6/12;       DATA[1994].O4OPP:=0.70;
  DATA[1995].O4FP:=10+3/12;       DATA[1995].O4OPP:=0.70;
  DATA[1996].O4FP:=10+5/12;       DATA[1996].O4OPP:=0.70;
  DATA[1997].O4FP:=10+8/12;       DATA[1997].O4OPP:=0.70;
                                  DATA[1998].O4OPP:=0.70;
                                  DATA[1999].O4OPP:=0.70;
                                  DATA[2000].O4OPP:=0.70;
```

```
DATA[1990].O5FP:=15+4/12;
DATA[1991].O5FP:=15+1/12;
DATA[1992].O5FP:=15+2/12;
DATA[1993].O5FP:=15+1/12;
DATA[1994].O5FP:=15+2/12;
DATA[1995].O5FP:=15+4/12;
DATA[1996].O5FP:=15+4/12;
DATA[1997].O5FP:=15+8/12;

DATA[1990].O6FP:=21+5/12;
DATA[1991].O6FP:=21+9/12;
DATA[1992].O6FP:=21+6/12;
DATA[1993].O6FP:=21+2/12;
DATA[1994].O6FP:=21;
DATA[1995].O6FP:=21+3/12;
DATA[1996].O6FP:=21+5/12;
DATA[1997].O6FP:=21+8/12;

DATA[1990].O5OPP:=0.70;
DATA[1991].O5OPP:=0.70;
DATA[1992].O5OPP:=0.70;
DATA[1993].O5OPP:=0.70;
DATA[1994].O5OPP:=0.65;
DATA[1995].O5OPP:=0.70;
DATA[1996].O5OPP:=0.70;
DATA[1997].O5OPP:=0.70;
DATA[1998].O5OPP:=0.70;
DATA[1999].O5OPP:=0.70;
DATA[2000].O5OPP:=0.70;

DATA[1990].O6OPP:=0.55;
DATA[1991].O6OPP:=0.55;
DATA[1992].O6OPP:=0.55;
DATA[1993].O6OPP:=0.55;
DATA[1994].O6OPP:=0.55;
DATA[1995].O6OPP:=0.55;
DATA[1996].O6OPP:=0.50;
DATA[1997].O6OPP:=0.50;
DATA[1998].O6OPP:=0.50;
DATA[1999].O6OPP:=0.50;
DATA[2000].O6OPP:=0.50;

DATA[1991].O6PROMO:=269;
DATA[1992].O6PROMO:=353;
DATA[1993].O6PROMO:=389;
DATA[1994].O6PROMO:=252;
DATA[1995].O6PROMO:=226;

DATA[1991].O5PROMO:=595;
DATA[1992].O5PROMO:=530;
DATA[1993].O5PROMO:=722;
DATA[1994].O5PROMO:=356;
DATA[1995].O5PROMO:=748;

DATA[1991].O4PROMO:=953;
DATA[1992].O4PROMO:=1094;
DATA[1993].O4PROMO:=878;
DATA[1994].O4PROMO:=778;
DATA[1995].O4PROMO:=1200;

DATA[1991].O3PROMO:=3000;
DATA[1992].O3PROMO:=3126;
DATA[1993].O3PROMO:=3236;
DATA[1994].O3PROMO:=2835;

DATA[1992].O6OPABeg:=1841;
DATA[1993].O6OPABeg:=1830;
DATA[1994].O6OPABeg:=1754;
DATA[1995].O6OPABeg:=1710;
DATA[1996].O6OPABeg:=1693;
DATA[1997].O6OPABeg:=1661;
DATA[1998].O6OPABeg:=1625;
DATA[1999].O6OPABeg:=1574;

DATA[1992].O6OPAEnd:=1830;
DATA[1993].O6OPAEnd:=1816;
DATA[1994].O6OPAEnd:=1731;
DATA[1995].O6OPAEnd:=1698;
DATA[1996].O6OPAEnd:=1661;
DATA[1997].O6OPAEnd:=1625;
DATA[1998].O6OPAEnd:=1574;
DATA[1999].O6OPAEnd:=1580;

DATA[1992].O5OPABeg:=4022;
DATA[1993].O5OPABeg:=3914;
DATA[1994].O5OPABeg:=3847;
DATA[1995].O5OPABeg:=3653;
DATA[1996].O5OPABeg:=3653;
DATA[1997].O5OPABeg:=3555;
DATA[1998].O5OPABeg:=3422;
DATA[1999].O5OPABeg:=3320;

DATA[1992].O5OPAEnd:=3914;
DATA[1993].O5OPAEnd:=3832;
DATA[1994].O5OPAEnd:=3768;
DATA[1995].O5OPAEnd:=3599;
DATA[1996].O5OPAEnd:=3555;
DATA[1997].O5OPAEnd:=3422;
DATA[1998].O5OPAEnd:=3320;
DATA[1999].O5OPAEnd:=3331;

DATA[1992].O4OPABeg:=6450;
DATA[1993].O4OPABeg:=6378;
DATA[1994].O4OPABeg:=6060;
DATA[1995].O4OPABeg:=5736;
DATA[1996].O4OPABeg:=5602;
DATA[1997].O4OPABeg:=5431;
DATA[1998].O4OPABeg:=5214;
DATA[1999].O4OPABeg:=5075;

DATA[1992].O4OPAEnd:=6378;
DATA[1993].O4OPAEnd:=6081;
DATA[1994].O4OPAEnd:=5905;
DATA[1995].O4OPAEnd:=5634;
DATA[1996].O4OPAEnd:=5431;
DATA[1997].O4OPAEnd:=5214;
DATA[1998].O4OPAEnd:=5075;
DATA[1999].O4OPAEnd:=5065;

DATA[1990].ACCESSION:=3578;
DATA[1991].ACCESSION:=3050;
DATA[1992].ACCESSION:=2773;
DATA[1993].ACCESSION:=2165;
DATA[1994].ACCESSION:=2165;

DATA[1995].ACCESSION:=2165;
DATA[1996].ACCESSION:=2165;
DATA[1997].ACCESSION:=2165;
DATA[1998].ACCESSION:=2165;
DATA[1999].ACCESSION:=2165;

for R:=1 to 6 do begin
  for Y:=1990 to 2000 do begin
    GRADE[R,Y].INV:=0;
    GRADE[R,Y].BEGSTRENGTH:=0;
    GRADE[R,Y].RATE:=0;
    GRADE[R,Y].CONT:=0;
    GRADE[R,Y].LOSS:=0;
    GRADE[R,Y].PINV:=0;
    GRADE[R,Y].ENDSTRENGTH:=0;
    GRADE[R,Y].PlanRATE:=0;
    GRADE[R,Y].PlanCONT:=0;
    GRADE[R,Y].PlanLOSS:=0;
```

```
      GRADE[R,Y].PROMO:=0;          GRADE[R,Y].NPROMO:=0;
      GRADE[R,Y].ACC:=0;            GRADE[R,Y].ZONESIZE:=0;
      GRADE[R,Y].SEL:=0;
      GRADE[R,Y].XPROMO:=0;         GRADE[R,Y].XNPROMO:=0;
      GRADE[R,Y].FLOWPT:=0;
      GRADE[R,Y].AZPct:=0;          GRADE[R,Y].AZTot:=0;
      GRADE[R,Y].IZPct:=0;          GRADE[R,Y].IZTot:=0;
      GRADE[R,Y].BZPct:=0;          GRADE[R,Y].BZTot:=0;

      GRADE[2,Y].OPP:=DATA[Y].02OPP;  GRADE[3,Y].OPP:=DATA[Y].03OPP;
      GRADE[4,Y].OPP:=DATA[Y].04OPP;  GRADE[5,Y].OPP:=DATA[Y].05OPP;
      GRADE[6,Y].OPP:=DATA[Y].06OPP;
    end;
  end;

  GRADE[4,YEAR].FLOWPT:=DATA[YEAR].04FP;
  GRADE[5,YEAR].FLOWPT:=DATA[YEAR].05FP;
  GRADE[6,YEAR].FLOWPT:=DATA[YEAR].06FP;

end;

{*************************************************************************}

procedure SetUpStocks(var STOCK:arrayType);

{Zeroes out the record entries in the OLDSTOCK variable.}

var R,YOS:integer;

begin
  for YOS := 0 to 30  do begin
    for R := 1 to 6 do begin
      STOCK[R,YOS].GRADE:=R;        STOCK[R,YOS].YOS:=YOS;
      STOCK[R,YOS].INV:=0;          STOCK[R,YOS].PINV:=0;
      STOCK[R,YOS].STRENGTH:=0;     STOCK[R,YOS].ELIG:=0;
      STOCK[R,YOS].RATE:=0;         STOCK[R,YOS].PlanRATE:=0;
      STOCK[R,YOS].LOSS:=0;         STOCK[R,YOS].PlanLOSS:=0;
      STOCK[R,YOS].CONT:=0;         STOCK[R,YOS].PlanCONT:=0;
      STOCK[R,YOS].PROMO:=0;        STOCK[R,YOS].XPROMO:=0;
      STOCK[R,YOS].NPROMO:=0;       STOCK[R,YOS].XNPROMO:=0;
      STOCK[R,YOS].SEL:=0;          STOCK[R,YOS].ACC:=0;
    end;
  end;
end;

{*************************************************************************}

procedure InitializeStocks (var STOCK:ArrayType; var GRADE:GradeArray);

{Initializes the starting values of the OLDSTOCK variable from a user defined inventory and
continuation rate file and the default values. Sums these values for storage in the GRADE
variable.}

var Infile:text;
    RATE:real;
    YOS,INV,LOSS,CONT,ACC:integer;
    R:integer;
    NAMEStr: string;

begin

  writeln('           ****    URL Officer Promotion Model    ****');
  writeln;
  writeln('WHAT IS THE NAME AND PATH OF THE INV/CONTINUATION RATE MATRIX?');
  writeln;
  write('Must be in the form of  ');
  writeln(' YOS O1INV O1RATE . . . O6INV O6RATE');
  writeln;
  writeln('NOTE: These files can be found on the OPM disk under ');
  writeln('FY90.dat  FY91.dat  FY92.dat  FY93.dat  FY94.dat  FY95.dat');
  writeln;
  readln(NAMEStr);
  assign(Infile,NAMEStr);
  clrscr;
  reset (Infile);
  for YOS := 0 to 30  do begin
```

```
      read(Infile,YOS);
      for R := 1 to 6 do begin
        read(Infile,INV,RATE);
        STOCK[R,YOS].GRADE:=R;
        STOCK[R,YOS].YOS:=YOS;
        STOCK[R,YOS].INV:=INV;
        STOCK[R,YOS].RATE:=RATE;

        if R>3 then STOCK[R,YOS].PlanRATE:=DistRATE[R,YOS];
        if R=4 then STOCK[R,YOS].PlanRATE:=STOCK[R,YOS].RATE/100;

        STOCK[R,YOS].LOSS:=ROUND(INV*(100-RATE)/100);
        STOCK[R,YOS].CONT:=ROUND(INV*RATE/100);
        STOCK[R,YOS].ACC:=ROUND(DistACC[R,YOS]*DATA[YEAR].ACCESSION);
      end;
      readln(Infile);
    end;

    for R := 1 to 6 do begin
      INV:=0;   CONT:=0;   LOSS:=0;   ACC:=0;
      for YOS := 0 to 30 do begin
        INV  := INV + STOCK[R,YOS].INV;
        CONT := CONT + STOCK[R,YOS].CONT;
        LOSS := LOSS + STOCK[R,YOS].LOSS;
        ACC  := ACC + STOCK[R,YOS].ACC;
      end;
      GRADE[R,YEAR].INV :=INV;
      GRADE[R,YEAR].PINV :=INV;
      GRADE[R,YEAR].CONT:=CONT;
      GRADE[R,YEAR].LOSS:=LOSS;
      GRADE[R,YEAR].ACC :=ACC;
      GRADE[R,YEAR].RATE:=ROUND(CONT/INV*10000)/10000;
      case R of
          1 : begin
                GRADE[R,YEAR].BegSTRENGTH:=GRADE[R,YEAR].INV;
              end;
          2 : begin
                GRADE[R,YEAR].BegSTRENGTH:=GRADE[R,YEAR].INV;
                GRADE[R,YEAR].OPP:=DATA[YEAR].O2OPP;
                GRADE[R,YEAR].FLOWPT:=DATA[YEAR].O2FP;
                GRADE[R,YEAR].AZPct:=0.0;
                GRADE[R,YEAR].IZPct:=1.0;
                GRADE[R,YEAR].BZPct:=0.0;
              end;
          3 : begin
                GRADE[R,YEAR].BegSTRENGTH:=GRADE[R,YEAR].INV;
                GRADE[R,YEAR].OPP:=DATA[YEAR].O3OPP;
                GRADE[R,YEAR].FLOWPT:=DATA[YEAR].O3FP;
                GRADE[R,YEAR].AZPct:=0.095;
                GRADE[R,YEAR].IZPct:=0.9905;
                GRADE[R,YEAR].BZPct:=0.0;
               end;
          4 : begin
                GRADE[R,YEAR].OPP:=DATA[YEAR].O4OPP;
                GRADE[R,YEAR].AZPct:=0.021;
                GRADE[R,YEAR].IZPct:=0.943;
                GRADE[R,YEAR].BZPct:=0.036;
              end;
          5 : begin
                GRADE[R,YEAR].OPP:=DATA[YEAR].O5OPP;
                GRADE[R,YEAR].AZPct:=0.0199;
                GRADE[R,YEAR].IZPct:=0.9615;
                GRADE[R,YEAR].BZPct:=0.0186;
              end;
          6 : begin
                GRADE[R,YEAR].OPP:=DATA[YEAR].O6OPP;
                GRADE[R,YEAR].AZPct:=0.02;
                GRADE[R,YEAR].IZPct:=0.938;
                GRADE[R,YEAR].BZPct:=0.042;
              end;
      end;
    end;
  end;

{*************************************************************************}
```

```
procedure SelectGradeGoals(var GRADE:GradeArray; var STOCK:ArrayType);

{Sets up the default inputs for the promotion model.}

var INVbeg,INVend : array[1..6] of integer;
    RATE6:real;
    ACCESSION,CONT : integer;
    R,YOS : integer;

begin

  ACCESSION:=DATA[YEAR].ACCESSION;

  GRADE[6,YEAR].BEGSTRENGTH:=DATA[YEAR].O6OPABeg;
  GRADE[6,YEAR].ENDSTRENGTH:=DATA[YEAR].O6OPAEnd;
  GRADE[5,YEAR].BEGSTRENGTH:=DATA[YEAR].O5OPABeg;
  GRADE[5,YEAR].ENDSTRENGTH:=DATA[YEAR].O5OPAEnd;
  GRADE[4,YEAR].BEGSTRENGTH:=DATA[YEAR].O4OPABeg;
  GRADE[4,YEAR].ENDSTRENGTH:=DATA[YEAR].O4OPAEnd;
  GRADE[3,YEAR].BEGSTRENGTH:=GRADE[3,YEAR].INV;  {DATA[YEAR].O3OPABeg;}
  GRADE[3,YEAR].ENDSTRENGTH:=0;                  {DATA[YEAR].O3OPAEnd;}
  GRADE[2,YEAR].BEGSTRENGTH:=GRADE[2,YEAR].INV;
  GRADE[2,YEAR].ENDSTRENGTH:=0;
  GRADE[1,YEAR].BEGSTRENGTH:=GRADE[1,YEAR].INV;
  GRADE[1,YEAR].ENDSTRENGTH:=0;
  GRADE[1,YEAR].SEL:=0;
  GRADE[1,YEAR].PROMO:=0;
  GRADE[1,YEAR].XPROMO:=0;
  GRADE[6,YEAR].ADDLoss:=0;
  GRADE[5,YEAR].ADDLoss:=0;
  GRADE[4,YEAR].ADDLoss:=0;

  GRADE[6,YEAR].PROMO:=DATA[YEAR].O6PROMO;
  GRADE[5,YEAR].PROMO:=DATA[YEAR].O5PROMO;
  GRADE[4,YEAR].PROMO:=DATA[YEAR].O4PROMO;
  GRADE[3,YEAR].PROMO:=DATA[YEAR].O3PROMO;

  GRADE[6,YEAR].PlanRATE:=0.830;    {0.8158;}
  GRADE[6,YEAR].PlanCONT:=ROUND(GRADE[6,YEAR].PlanRATE*GRADE[6,YEAR].BegSTRENGTH);
  GRADE[6,YEAR].PlanLOSS:=GRADE[6,YEAR].BegSTRENGTH-GRADE[6,YEAR].PlanCONT;

  for R:= 4 to 5 do begin
    CONT:=0;
    for YOS:= 0 to 30 do begin
      STOCK[R,YOS].STRENGTH:=ROUND(GRADE[R,YEAR].BegSTRENGTH*DistGRADE[R,YOS]);
      STOCK[R,YOS].PlanCONT:=ROUND(STOCK[R,YOS].STRENGTH*DistRATE[R,YOS]);
      STOCK[R,YOS].PlanLOSS:=STOCK[R,YOS].STRENGTH-STOCK[R,YOS].PlanCONT;
      CONT:=CONT+STOCK[R,YOS].PlanCONT;
    end;
    GRADE[R,YEAR].PlanCONT:=CONT;
    GRADE[R,YEAR].PlanLOSS:=GRADE[R,YEAR].BegSTRENGTH-GRADE[R,YEAR].PlanCONT;
    GRADE[R,YEAR].PlanRATE:=GRADE[R,YEAR].PlanCONT/GRADE[R,YEAR].BegSTRENGTH;
  end;
  for R:=1 to 3 do begin
    CONT:=0;
    for YOS:= 0 to 30 do begin
      STOCK[R,YOS].STRENGTH:=STOCK[R,YOS].INV;
      STOCK[R,YOS].PlanCONT:=ROUND(STOCK[R,YOS].STRENGTH*DistRATE[R,YOS]);
      STOCK[R,YOS].PlanLOSS:=STOCK[R,YOS].STRENGTH-STOCK[R,YOS].PlanCONT;
      CONT:=CONT+STOCK[R,YOS].PLANCONT;
    end;
    GRADE[R,YEAR].PlanCONT:=CONT;
    GRADE[R,YEAR].PlanLOSS:=GRADE[R,YEAR].BegSTRENGTH-GRADE[R,YEAR].PlanCONT;
    GRADE[R,YEAR].PlanRATE:=GRADE[R,YEAR].PlanCONT/GRADE[R,YEAR].BegSTRENGTH;
  end;
end;

{*************************************************************************}

procedure AdjustAccessions(RANK:integer;var GRADE:GradeArray; var STOCK:ArrayType);

{Adjusts the distribution of accessions to the OLDSTOCK variable if the user specifies a
change in the total number of accessions. Adjusts the total number of accessions if the user
specifies a change in accessions within the grade/YOS structure of the OLDSTOCK variable.}

var R,YOS,ACC:integer;
```

```
    SUM,PCT:real;
    ACCDist:array [0..30] of real;

begin
  if RANK=0 then begin
    for R:=1 to 6 do begin
      ACC:=0;
      for YOS:=0 to 30 do begin
        STOCK[R,YOS].ACC:=ROUND(DistACC[R,YOS]*DATA[YEAR].ACCESSION);
        ACC  := ACC + STOCK[R,YOS].ACC;
      end;
      GRADE[R,YEAR].ACC:=ACC;
    end;
  end
  else begin
    SUM:=0;
    for YOS:=0 to 30 do begin
      SUM:=SUM+DistACC[RANK,YOS];
      ACCDist[YOS]:=DistACC[RANK,YOS];
    end;
    for YOS:=0 to 30 do begin
      PCT:=ACCDist[YOS]/SUM;
      STOCK[RANK,YOS].ACC:=ROUND(PCT*GRADE[RANK,YEAR].ACC);
    end;
  end;
end;

{*************************************************************************}

procedure AdjustGrade (R:integer;var GRADE:GradeArray; var STOCK:ArrayType);

{Adjusts the distribution of strength in the OLDSTOCK variable if the user specifies a change
in the beginning strength of a grade.}

var CONT,YOS:integer;

begin
  if R=6 then begin
    GRADE[6,YEAR].PlanCONT:=ROUND(GRADE[6,YEAR].PlanRATE*GRADE[6,YEAR].BEGSTRENGTH);
    GRADE[6,YEAR].PlanLOSS:=GRADE[6,YEAR].BEGSTRENGTH-GRADE[6,YEAR].PlanCONT;
  end
  else begin
    CONT:=0;
    for YOS:=0 to 30 do begin
      STOCK[R,YOS].STRENGTH:=ROUND(GRADE[R,YEAR].BegSTRENGTH*DistGRADE[R,YOS]);
      STOCK[R,YOS].PlanCONT:=ROUND(STOCK[R,YOS].STRENGTH*STOCK[R,YOS].PlanRATE);
      STOCK[R,YOS].PlanLOSS:=STOCK[R,YOS].STRENGTH-STOCK[R,YOS].PlanCONT;
      CONT:=CONT+STOCK[R,YOS].PlanCONT;
    end;
    GRADE[R,YEAR].PlanCONT:=CONT;
    GRADE[R,YEAR].PlanLOSS:=GRADE[R,YEAR].BegSTRENGTH-GRADE[R,YEAR].PlanCONT;
    GRADE[R,YEAR].PlanRATE:=GRADE[R,YEAR].PlanCONT/GRADE[R,YEAR].BegSTRENGTH;
  end;
end;

{*************************************************************************}

procedure AdjustStock (RANK,YOS:integer; var GRADE:GradeArray;
                                         var STOCK:ArrayType);

{Adjusts the total beginning strength in the GRADE variable if the user specifies a change
in inventory to a grade/YOS field of the OLDSTOCK variable.}

begin
  GRADE[RANK,YEAR].PlanCONT:=GRADE[RANK,YEAR].PlanCONT-STOCK[RANK,YOS].PlanCONT;
  GRADE[RANK,YEAR].PlanLOSS:=GRADE[RANK,YEAR].PlanLOSS-STOCK[RANK,YOS].PlanLOSS;
  STOCK[RANK,YOS].PlanCONT:=ROUND(STOCK[RANK,YOS].STRENGTH*STOCK[RANK,YOS].PlanRATE);
  STOCK[RANK,YOS].PlanLOSS:=STOCK[RANK,YOS].STRENGTH-STOCK[RANK,YOS].PlanCONT;
  GRADE[RANK,YEAR].PlanCONT:=GRADE[RANK,YEAR].PlanCONT+STOCK[RANK,YOS].PlanCONT;
  GRADE[RANK,YEAR].PlanLOSS:=GRADE[RANK,YEAR].PlanLOSS+STOCK[RANK,YOS].PlanLOSS;
end;

{*************************************************************************}

procedure StockQuery (RANK:integer; var GRADE:GradeArray;
                      var STOCK:ArrayType; var DATA:DataArray); FORWARD;
```

```
{*************************************************************************}

procedure QueryUser(var GRADE:GradeArray; var STOCK:ArrayType;
                    var DATA:DataArray);

{Allows the user to specify changes to the default values in the GRADE variable.}

var INPUT,INPUT2,RANKChr:char;
    ANSWER:boolean;
    RANK,YOS:integer;
    RESPONSE:real;

begin
  writeln;
  DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
  DisplayGradeOptions;
  ANSWER:=FALSE;
  while ANSWER=FALSE do begin
    DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
    DisplayGradeOptions;
    if DATA[YEAR].Accession=0 then INPUT:='a';
    if DATA[YEAR].Accession<>0 then INPUT:=readkey;
    case INPUT of

      'a','A': begin
         DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
         write('CHANGE (T)otal ACCESSIONS OR (G)rade ACCESSIONS? ');
         INPUT2:=readkey;
         case INPUT2 of

          't','T': begin
            writeln(INPUT2);
            writeln('CURRENT ACCESSIONS ARE ',DATA[YEAR].ACCESSION,'.');
            write('PLEASE INPUT THE NEW NUMBER OF ACCESSIONS: ');
            DATA[YEAR].ACCESSION:=CheckInteger;
            RANK:=0;
            AdjustAccessions(RANK,GRADE,OLDSTOCK);
            DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
            DisplayGradeOptions;
          end;

         'g','G': begin
           writeln(INPUT2);
           write('WHAT GRADE: O-');
           RANKChr:=readkey;
           if (ord(RANKChr)<ord('7')) AND (ord(RANKChr)>ord('0')) then begin
             writeln(RANKChr);
             RANK:=ord(RANKChr)-ord('0');
             write('CURRENT ACCESSIONS FOR O-',RANKChr);
             writeln(' ARE ',GRADE[RANK,YEAR].ACC,'.');
             write('PLEASE INPUT THE NEW NUMBER OF ACCESSIONS: ');
             DATA[YEAR].ACCESSION:=DATA[YEAR].ACCESSION-GRADE[RANK,YEAR].ACC;
             GRADE[RANK,YEAR].ACC:=CheckInteger;
             DATA[YEAR].ACCESSION:=DATA[YEAR].ACCESSION+GRADE[RANK,YEAR].ACC;
             AdjustAccessions(RANK,GRADE,OLDSTOCK);
             DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
             DisplayGradeOptions;
           end;
         end;
        end;
       end;

      'b','B': begin
         DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
         write(' WHAT GRADE: O-');
         RANKChr:=readkey;
         if (ord(RANKChr)<ord('7')) AND (ord(RANKChr)>ord('3')) then begin
          write(RANKChr);
          write('   CURRENT BEGINNING STRENGTH FOR O-',RANKChr,' is: ');
          RANK:=ord(RANKChr)-ord('0');
          writeln(GRADE[RANK,YEAR].BEGSTRENGTH);
          write(' PLEASE INPUT THE NEW STRENGTH: ');
          GRADE[RANK,YEAR].BEGSTRENGTH:=CheckInteger;
          AdjustGrade(RANK,GRADE,OLDSTOCK);
          DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
          DisplayGradeOptions;
```

```
      end;
    end;

  'd','D': begin
      DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
      write('WHAT GRADE: O-');
      RANKChr:=readkey;
      if (ord(RANKChr)<ord('6')) AND (ord(RANKChr)>ord('0')) then begin
         writeln(RANKChr);
         RANK:=ord(RANKChr)-ord('0');
         ANSWER:=TRUE;
         StockQuery(RANK,GRADE,OLDSTOCK,DATA);
      end;
    end;

  'e','E': begin
      DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
      writeln(' NOTE: Changing O-1 to O-3 ENDSTRENGTH will have no effect on the model.
');
      writeln;
      write(' WHAT GRADE: O-');
      RANKChr:=readkey;
      if (ord(RANKChr)<ord('7')) AND (ord(RANKChr)>ord('0')) then begin
         write(RANKChr);
         write('   CURRENT END STRENGTH FOR O-',RANKChr,' is: ');
         RANK:=ord(RANKChr)-ord('0');
         writeln(GRADE[RANK,YEAR].ENDSTRENGTH);
         write(' PLEASE INPUT THE NEW STRENGTH: ');
         GRADE[RANK,YEAR].ENDSTRENGTH:=CheckInteger;
         DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
         DisplayGradeOptions;
      end;
    end;

  'l','L': begin
      DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
      write(' WHAT GRADE: O-');
      RANKChr:=readkey;
      if (ord(RANKChr)<ord('7')) AND (ord(RANKChr)>ord('3')) then begin
       write(RANKChr);
       write('   CURRENT ADDITIONAL LOSSES FOR O-',RANKChr,' is: ');
       RANK:=ord(RANKChr)-ord('0');
       writeln(GRADE[RANK,YEAR].ADDLoss);
       write(' PLEASE INPUT THE ADDITIONAL LOSSES: ');
       GRADE[RANK,YEAR].ADDLoss:=CheckInteger;
       DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
       DisplayGradeOptions;
      end;
    end;

  'o','O': begin
      DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
      write('WHAT GRADE O-');
      RANKChr:=readkey;
      if (ord(RANKChr)<ord('7')) AND (ord(RANKChr)>ord('0')) then begin
         writeln(RANKChr); writeln;
         write('CURRENT PROMOTION OPPORTUNITY FOR O-',RANKChr,' is: ');
         RANK:=ord(RANKChr)-ord('0');
         writeln(GRADE[RANK,YEAR].OPP*100:4:2); writeln;
         write('BY LAW, O-',RANK,' OPPORTUNITY MUST BE BETWEEN ');
         if RANK=2 then writeln(' 90 - 100%');
         if RANK=3 then writeln(' 85 - 100%');
         if RANK=4 then writeln(' 70 - 90%');
         if RANK=5 then writeln(' 60 - 80%');
         if RANK=6 then writeln(' 40 - 60%');
         writeln;
         write('PLEASE INPUT THE NEW PROMOTION OPPORTUNITY: ');
         RESPONSE:=CheckReal;
         GRADE[RANK,YEAR].OPP:=RESPONSE/100;
         DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
         DisplayGradeOptions;
      end;
    end;

  'r','R': begin
      DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
```

```
        write(' O-6 CONTINUATION RATE IS ');
        writeln(GRADE[6,YEAR].PlanRATE*100:4:2);
        write(' PLEASE INPUT THE NEW CONTINUATION RATE: ');
        GRADE[6,YEAR].PlanRATE:=CheckReal;
        GRADE[6,YEAR].PlanRATE:=GRADE[6,YEAR].PlanRATE/100;
        GRADE[6,YEAR].PlanCONT:=ROUND(GRADE[6,YEAR].PlanRATE*GRADE[6,YEAR].BEGSTRENGTH);
        GRADE[6,YEAR].PlanLOSS:=GRADE[6,YEAR].BEGSTRENGTH-GRADE[6,YEAR].PlanCONT;
        DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
        DisplayGradeOptions;
      end;

    'x','X': begin
               ANSWER:=TRUE;
             end;

     else begin
       DisplayGrade(RANK,YEAR,OLDSTOCK,GRADE);
       DisplayGradeOptions;
       INPUT:=readkey;
     end;
   end;
 end;
 clrscr;
 writeln('           ****    URL Officer Promotion Model    ****');
 writeln; writeln; writeln;
 writeln('Calculating . . . . ',YEAR);
end;

{************************************************************************}

procedure StockQuery (RANK:integer; var GRADE:GradeArray;
                      var STOCK:ArrayType; var DATA:DataArray);

{Allows the user to specify changes to the default values in the individual ranks and years
of service in the OLDSTOCK variable.}

var INPUT,RANKChr:char;
    ANSWER:boolean;
    YOS:integer;

begin
  writeln;
  DisplayStock(RANK,YEAR,OLDSTOCK,GRADE);
  DisplayStockOptions;
  ANSWER:=FALSE;
  while ANSWER=FALSE do begin
    INPUT:=readkey;
    case INPUT of

      'a','A': begin
         DisplayStock(RANK,YEAR,OLDSTOCK,GRADE);
         write('WHAT YOS? ');
         YOS:=CheckInteger;
         write('CURRENT O-',RANK,' WITH ',YOS,' ACCESSIONS ARE ');
         writeln(OLDSTOCK[RANK,YOS].ACC);
         write('PLEASE INPUT THE NEW NUMBER OF ACCESSIONS: ');
         GRADE[RANK,YEAR].ACC:=GRADE[RANK,YEAR].ACC-OLDSTOCK[RANK,YOS].ACC;
         DATA[YEAR].ACCESSION:=DATA[YEAR].ACCESSION-OLDSTOCK[RANK,YOS].ACC;
         OLDSTOCK[RANK,YOS].ACC:=CheckInteger;
         GRADE[RANK,YEAR].ACC:=GRADE[RANK,YEAR].ACC+OLDSTOCK[RANK,YOS].ACC;
         DATA[YEAR].ACCESSION:=DATA[YEAR].ACCESSION+OLDSTOCK[RANK,YOS].ACC;
         DisplayStock(RANK,YEAR,OLDSTOCK,GRADE);
         DisplayStockOptions;
      end;

      'c','C': begin
         DisplayStock(RANK,YEAR,OLDSTOCK,GRADE);
         write('WHAT GRADE: O-');
         RANKChr:=readkey;
         if (ord(RANKChr)<ord('6')) AND (ord(RANKChr)>ord('0')) then begin
          write(RANKChr);
          RANK:=ord(RANKChr)-ord('0');
         end;
       end;

      'i','I': begin
```

```
          DisplayStock(RANK,YEAR,OLDSTOCK,GRADE);
          write('WHAT YOS? ');
          YOS:=CheckInteger;
          write('CURRENT O-',RANK,' WITH ',YOS,' INVENTORY IS ');
          writeln(OLDSTOCK[RANK,YOS].STRENGTH);
          write('PLEASE INPUT THE NEW INVENTORY: ');
          GRADE[RANK,YEAR].BEGSTRENGTH:=
                  GRADE[RANK,YEAR].BEGSTRENGTH-OLDSTOCK[RANK,YOS].STRENGTH;
          OLDSTOCK[RANK,YOS].STRENGTH:=CheckInteger;
          GRADE[RANK,YEAR].BEGSTRENGTH:=
                  GRADE[RANK,YEAR].BEGSTRENGTH+OLDSTOCK[RANK,YOS].STRENGTH;
          AdjustStock(RANK,YOS,GRADE,OLDSTOCK);
          DisplayStock(RANK,YEAR,OLDSTOCK,GRADE);
          DisplayStockOptions;
        end;

      'r','R': begin
          DisplayStock(RANK,YEAR,OLDSTOCK,GRADE);
          write('WHAT YOS? ');
          YOS:=CheckInteger;
          write('CURRENT O-',RANK,' WITH ',YOS,' CONTINUATION RATE IS ');
          writeln(OLDSTOCK[RANK,YOS].PlanRATE*100:4:2);
          write('PLEASE INPUT THE NEW RATE: ');
          OLDSTOCK[RANK,YOS].PlanRATE:=CheckReal;
          OLDSTOCK[RANK,YOS].PlanRATE:=OLDSTOCK[RANK,YOS].PlanRATE/100;
          AdjustStock(RANK,YOS,GRADE,OLDSTOCK);
          DisplayStock(RANK,YEAR,OLDSTOCK,GRADE);
          DisplayStockOptions;
        end;

      'x','X': begin
                 ANSWER:=TRUE;
                 QueryUser(GRADE,OLDSTOCK,DATA);
               end;

       else begin
         writeln;
         DisplayStock(RANK,YEAR,OLDSTOCK,GRADE);
         DisplayStockOptions;
       end;
    end;
  end;
end;

{*************************************************************************}

procedure CalcSeniorSelections (var GRADE:GradeArray;Y:integer);

{Utilizes the final values specified in the STOCKQUERY AND QUERYUSER procedures to calculate
the number of promotions required to meet end strength for LCDR through CAPT. Distributes
these promotions by proportions to above, below, and within the zone.

begin
  GRADE[6,Y].SEL:=GRADE[6,Y].ENDSTRENGTH - GRADE[6,Y].PlanCONT
            + 25 - GRADE[6,Y].ACC + GRADE[6,YEAR].ADDLoss;
  GRADE[6,Y].AZTot:=ROUND(GRADE[6,Y].AZPct*GRADE[6,Y].SEL);
  GRADE[6,Y].BZTot:=ROUND(GRADE[6,Y].BZPct*GRADE[6,Y].SEL);
  GRADE[6,Y].IZTot:=GRADE[6,Y].SEL-GRADE[6,Y].BZTot-GRADE[6,Y].AZTot;
  GRADE[6,Y].XPROMO:=GRADE[6,Y].SEL;

  GRADE[5,Y].SEL:=GRADE[5,Y].ENDSTRENGTH - GRADE[5,Y].PlanCONT
            + GRADE[6,Y].SEL  - GRADE[5,Y].ACC + GRADE[5,YEAR].ADDLoss;
  GRADE[5,Y].AZTot:=ROUND(GRADE[5,Y].AZPct*GRADE[5,Y].SEL);
  GRADE[5,Y].BZTot:=ROUND(GRADE[5,Y].BZPct*GRADE[5,Y].SEL);
  GRADE[5,Y].IZTot:=GRADE[5,Y].SEL-GRADE[5,Y].BZTot-GRADE[5,Y].AZTot;

  GRADE[4,Y].SEL:=GRADE[4,Y].ENDSTRENGTH - GRADE[4,Y].PlanCONT
            + GRADE[5,Y].SEL  - GRADE[4,Y].ACC + GRADE[4,YEAR].ADDLoss;
  GRADE[4,Y].AZTot:=ROUND(GRADE[4,Y].AZPct*GRADE[4,Y].SEL);
  GRADE[4,Y].BZTot:=ROUND(GRADE[4,Y].BZPct*GRADE[4,Y].SEL);
  GRADE[4,Y].IZTot:=GRADE[4,Y].SEL-GRADE[4,Y].BZTot-GRADE[4,Y].AZTot;
end;


{*************************************************************************}
```

```
procedure CalcJOSelections(var GRADE:GradeArray;var STOCK:ArrayType);

{Calculates the promotions to LTJG and LT by multiplying the opportunity by the number
eligible. A percentage of these promotions are lost due to attrition.}

var OPP3,OPP2:real;
    R,Y:integer;

begin
  OPP3:=DATA[YEAR].O3OPP;
  OPP2:=DATA[YEAR].O2OPP;

  for Y:=0 to 30 do begin
    STOCK[1,Y].NPROMO:=STOCK[1,Y].CONT;
    STOCK[1,Y].XNPROMO:=STOCK[1,Y].PlanCONT;
    STOCK[2,Y].NPROMO:=STOCK[2,Y].CONT;
    STOCK[2,Y].XNPROMO:=STOCK[2,Y].PlanCONT;
  end;

  STOCK[2,3].SEL:=ROUND(OPP3*STOCK[2,3].INV*0.95);
  STOCK[2,4].SEL:=ROUND(OPP3*STOCK[2,4].INV*(0.75));
  STOCK[2,3].PROMO:=ROUND(0.95*STOCK[2,3].SEL);
  STOCK[2,4].PROMO:=ROUND(0.95*STOCK[2,4].SEL);
  STOCK[2,3].NPROMO:=STOCK[2,3].PlanCONT-STOCK[2,3].PROMO;
  STOCK[2,4].NPROMO:=STOCK[2,4].PlanCONT-STOCK[2,4].PROMO;
  GRADE[3,YEAR].SEL:=STOCK[2,3].SEL+STOCK[2,4].SEL;
  GRADE[3,YEAR].PROMO:=STOCK[2,3].PROMO+STOCK[2,4].PROMO;

  STOCK[1,1].SEL:=ROUND(0.99*STOCK[1,1].INV);
  STOCK[1,2].SEL:=ROUND(OPP2*STOCK[1,2].INV*(0.75));
  STOCK[1,1].PROMO:=ROUND(STOCK[1,1].SEL*STOCK[1,1].PlanRATE);
  STOCK[1,2].PROMO:=ROUND(0.95*STOCK[1,2].SEL);
  STOCK[1,1].NPROMO:=STOCK[1,1].PlanCONT-STOCK[1,1].PROMO;
  STOCK[1,2].NPROMO:=STOCK[1,2].PlanCONT-STOCK[1,2].PROMO;
  GRADE[2,YEAR].SEL:=STOCK[1,1].SEL+STOCK[1,2].SEL;
  GRADE[2,YEAR].PROMO:=STOCK[1,1].PROMO+STOCK[1,2].PROMO;

  STOCK[2,3].XPROMO:=ROUND(OPP3*STOCK[2,3].STRENGTH*0.95);
  STOCK[2,4].XPROMO:=ROUND(OPP3*STOCK[2,4].STRENGTH*(0.75));
  STOCK[2,3].XPROMO:=ROUND(0.95*STOCK[2,3].XPROMO);
  STOCK[2,4].XPROMO:=ROUND(0.95*STOCK[2,4].XPROMO);
  STOCK[2,3].XNPROMO:=STOCK[2,3].PlanCONT-STOCK[2,3].XPROMO;
  STOCK[2,4].XNPROMO:=STOCK[2,4].PlanCONT-STOCK[2,4].XPROMO;
  GRADE[3,YEAR].XPROMO:=STOCK[2,3].XPROMO+STOCK[2,4].XPROMO;

  STOCK[1,1].XPROMO:=ROUND(0.99*STOCK[1,1].INV);
  STOCK[1,2].XPROMO:=ROUND(OPP2*STOCK[1,2].INV*(0.75));
  STOCK[1,1].XPROMO:=ROUND(STOCK[1,1].SEL*STOCK[1,1].PlanRATE);
  STOCK[1,2].XPROMO:=ROUND(0.95*STOCK[1,2].SEL);
  STOCK[1,1].XNPROMO:=STOCK[1,1].PlanCONT-STOCK[1,1].PROMO;
  STOCK[1,2].XNPROMO:=STOCK[1,2].PlanCONT-STOCK[1,2].PROMO;
  GRADE[2,YEAR].XPROMO:=STOCK[1,1].XPROMO+STOCK[1,2].XPROMO;
end;

{*************************************************************************}

procedure MakeList (RANK:integer;var QUEUE,TOP:NodePOINT;FP:real);

{Constructs a lineal list of all the officers continuing in grades O-3, O-4, and O-5 for the
determination of the top officer in zone, delineation of the zone, and the tracking of flow
points.}

var CONT,TOTAL,i,Y:integer;
    CurrentPointer,Pointer:NodePOINT;
    YOS:real;
    TEST:boolean;

begin
  SYSTEM.new(Pointer);
  TEST:=FALSE;
  TOTAL:=1;
  Pointer^.Next:=nil;
  QUEUE:=Pointer;
  CurrentPointer:=Pointer;
  for Y := 30 downto 7 do begin
     CONT:=OLDSTOCK[RANK,Y].PlanCONT;
```

```
      for i := CONT downto 1 do begin
        CurrentPointer^.Number:=TOTAL;
        YOS:=Y + i/(CONT+1);
        CurrentPointer^.YOS:=YOS;
        TOTAL:=TOTAL + 1;
        if YOS>FP then begin
          CurrentPointer^.IZ:=FALSE;
          CurrentPointer^.BZ:=FALSE;
          CurrentPointer^.AZ:=TRUE;
        end;
        if YOS<FP then begin
          CurrentPointer^.IZ:=FALSE;
          CurrentPointer^.BZ:=TRUE;
          CurrentPointer^.AZ:=FALSE;
        end;
        if (YOS<FP) AND (TEST=FALSE) then begin
          TEST:=TRUE;
          CurrentPointer^.IZ:=TRUE;
          CurrentPointer^.BZ:=FALSE;
          TOP:=CurrentPointer;
        end;
        SYSTEM.new(Pointer);
        Pointer^.Next:=nil;
        CurrentPointer^.Next:=Pointer;
        CurrentPointer:=Pointer;
      end;
    end;
end;

{*************************************************************************}

procedure CalcZone(RANK,YEAR:integer;var QUEUE,TOP,HIGH,BOTTOM:NodePoint;
                   var GRADE:GradeArray; var STOCK:ArrayType);

{Delineates the promotion zone on the lineal list by determination of all the eligible
officers on the list and marking them as eligible. Determines the flow point for the
following year promotion cycle.}

var i,YOS,ZONESIZE:integer;
    TOPYOS,TOPCONT,HIGHNUMBER,ADD:integer;
    BYOS,BCONT,LOWNUMBER,SUB:integer;
    AZAdjust,BZAdjust,ZONEAdjust:real;
    Pointer:NodePOINT;

begin
  ZONESIZE:=ROUND(GRADE[RANK+1,YEAR].SEL/GRADE[RANK+1,YEAR].OPP);
  GRADE[RANK+1,YEAR].ZONESIZE:=ZONESIZE;
  Pointer:=QUEUE;
  TOPYOS:=TRUNC(TOP^.YOS);
  TOPCONT:=STOCK[RANK,TOPYOS].PlanCONT;

  if RANK=5 then begin
    AZAdjust:=0.6;
    BZAdjust:=0.05;
    ZONEAdjust:=1.2;
  end;
  if RANK=4 then begin
    AZAdjust:=0.3;
    BZAdjust:=0.1;
    ZONEAdjust:=1.0;
  end;
  if RANK=3 then begin
    AZAdjust:=0.5;
    BZAdjust:=0.05;
    ZONEAdjust:=1.0;
    if YEAR=1995 then ZONEAdjust:=1.2;
  end;

  ADD:=ROUND(AZAdjust*(TOPCONT*(1-TOP^.YOS+TOPYOS)));
  HIGHNUMBER:=TOP^.NUMBER-ADD;

  while (Pointer^.Number <= HIGHNUMBER) do begin
    if (Pointer^.Number=HIGHNUMBER) then begin
      HIGH:=Pointer;
    end;
    Pointer:=Pointer^.Next;
```

```
  end;

  Pointer:=HIGH;
  for i:= 1 to ZONESIZE do begin
    Pointer^.IZ:=TRUE;
    Pointer^.BZ:=FALSE;
    Pointer^.AZ:=FALSE;
    YOS:=TRUNC(Pointer^.YOS);
    STOCK[RANK,YOS].ELIG:=STOCK[RANK,YOS].ELIG + 1;
    if i=ZONESIZE then begin
      BOTTOM:=Pointer;
    end;
    Pointer:=Pointer^.Next;
  end;

  BYOS:=TRUNC(BOTTOM^.YOS);
  BCONT:=STOCK[RANK,BYOS].PlanCONT;
  SUB:=ROUND(BZAdjust*(BCONT*(1-BOTTOM^.YOS+BYOS)));
  STOCK[RANK,BYOS].ELIG:=STOCK[RANK,BYOS].ELIG - SUB;
  if BYOS=TOPYOS-2 then begin
    BYOS:=TRUNC(BOTTOM^.YOS+1);
    BCONT:=STOCK[RANK,BYOS+1].PlanCONT;
    SUB:=SUB+ROUND(BZAdjust*(BCONT*(1-BOTTOM^.YOS+BYOS)));
    STOCK[RANK,BYOS].ELIG:=STOCK[RANK,BYOS].ELIG-ROUND(BZAdjust*BCONT);
  end;
  LOWNUMBER:=BOTTOM^.NUMBER+SUB;

  Pointer:=BOTTOM;
  for i:= BOTTOM^.Number to LOWNUMBER do begin
    YOS:=TRUNC(Pointer^.YOS);
    STOCK[RANK,YOS].ELIG:=STOCK[RANK,YOS].ELIG + 1;
    if i=LOWNUMBER then begin
      BOTTOM:=Pointer;
    end;
    Pointer:=Pointer^.Next;
  end;
  GRADE[RANK+1,YEAR+1].FLOWPT:=BOTTOM^.YOS + ZONEAdjust;
end;

{*************************************************************************}

procedure CalcSeniorPromotions(RANK,YEAR:integer;var STOCK:ArrayType;
                               TOP,BOTTOM:NodePOINTER);

{Updates the OLDSTOCK variable with the promotions that were previously calculated.}

var YOS,TYOS,BYOS,ELIG,IZTot,ZONESIZE:integer;
    PCT:real;

begin
  writeln;
  writeln('                    . . . .  O-',RANK+1,' PROMOTIONS');
  TYOS:=TRUNC(TOP^.YOS);
  BYOS:=TRUNC(BOTTOM^.YOS);
  ZONESIZE:=GRADE[RANK+1,YEAR].ZONESIZE;
  IZTot:=GRADE[RANK+1,YEAR].IZTot;
  for YOS:=TYOS downto BYOS do begin
    ELIG:=STOCK[RANK,YOS].ELIG;
    PCT:=IZTot/ZONESIZE;
    STOCK[RANK,YOS].SEL:=ROUND(ELIG*PCT);
  end;
  STOCK[RANK,TYOS+1].SEL:=ROUND(GRADE[RANK+1,YEAR].AZTot/2);
  STOCK[RANK,TYOS].SEL:=STOCK[RANK,TYOS].SEL+ROUND(GRADE[RANK+1,YEAR].AZTot/2);
  STOCK[RANK,BYOS].SEL:=STOCK[RANK,BYOS].SEL+GRADE[RANK+1,YEAR].BZTot;
  for YOS:=30 downto 0 do begin
    STOCK[RANK,YOS].XPROMO:=STOCK[RANK,YOS].SEL;
    STOCK[RANK,YOS].XNPROMO:=STOCK[RANK,YOS].PlanCONT-STOCK[RANK,YOS].XPROMO;
    STOCK[RANK,YOS].PROMO:=STOCK[RANK,YOS].SEL;
    STOCK[RANK,YOS].NPROMO:=STOCK[RANK,YOS].CONT-STOCK[RANK,YOS].PROMO;
  end;
  GRADE[RANK,YEAR].XPROMO:=GRADE[RANK,YEAR].SEL;
  if RANK=3 then begin
    writeln;
    writeln('                    . . . .  JUNIOR OFFICER PROMOTIONS');
    writeln; writeln;
    writeln('PRESS RETURN TO CONTINUE');
```

```
    readln;
  end;
end;

{*************************************************************************}

procedure DisposeList(var QUEUE:NodePOINT);

{Disposes of the lineal list to make room in memory.}

var Pointer:NodePOINT;

begin
  Pointer:=QUEUE;
  while QUEUE<>nil do begin
    QUEUE:=QUEUE^.Next;
    dispose(Pointer);
    Pointer:=QUEUE;
  end;
end;

{*************************************************************************}

procedure UpdateStocks (var NEWSTOCK:NewType;var GRADE:GradeArray);

{Updates the NEWSTOCK variable with the end strength computed by the personnel flow. Totals
these strengths for use in the following year cycle.}

var R,Y,PROMO,NPROMO,STRENGTH,XNPROMO,XSTRENGTH,ACC:integer;

begin
  for R:=1 to 5 do begin
    NEWSTOCK[R,0].INV:=OLDSTOCK[R,0].ACC;
    NEWSTOCK[R,0].PINV:=OLDSTOCK[R,0].ACC;
    STRENGTH:=NEWSTOCK[R,0].INV;
    XSTRENGTH:=NEWSTOCK[R,0].PINV;

    for Y:=1 to 30 do begin

      if R=1 then begin
        PROMO:=0;
      end
      else begin
        PROMO:=OLDSTOCK[R-1,Y-1].PROMO;
      end;

      NPROMO:=OLDSTOCK[R,Y-1].NPROMO;
      ACC:=OLDSTOCK[R,Y].ACC;
      NEWSTOCK[R,Y].INV:=NPROMO+ACC+PROMO;
      STRENGTH:=STRENGTH+NEWSTOCK[R,Y].INV;

      XNPROMO:=OLDSTOCK[R,Y-1].XNPROMO;
      NEWSTOCK[R,Y].PINV:=XNPROMO+ACC+PROMO;
      XSTRENGTH:=XSTRENGTH+NEWSTOCK[R,Y].PINV;
    end;
    GRADE[R,YEAR+1].INV:=STRENGTH;
    GRADE[R,YEAR+1].PINV:=XSTRENGTH;
  end;

  GRADE[6,YEAR+1].INV:=GRADE[6,YEAR].ACC + GRADE[6,YEAR].PROMO
                       + GRADE[6,YEAR].CONT - 25;
  GRADE[6,YEAR+1].PINV:= GRADE[6,YEAR+1].INV;
  for R:=1 to 5 do begin
    NPROMO:=0;
    XNPROMO:=0;
    for Y:= 0 to 30 do begin
      NPROMO:=NPROMO+OLDSTOCK[R,Y].NPROMO;
      XNPROMO:=XNPROMO+OLDSTOCK[R,Y].XNPROMO;
    end;
    GRADE[R,YEAR].NPROMO:=NPROMO;
    GRADE[R,YEAR].XNPROMO:=XNPROMO;
  end;
end;

{*************************************************************************}
```

```
procedure ReDisplay;

{Allows user to redisplay the results of the promotion cycle.}

var RANKChr,ANSWER:char;
var RANK:integer;
var TEST:boolean;
begin
  TEST:=FALSE;
  while TEST=FALSE DO BEGIN
    DisplayOption;
    ANSWER:=readkey;
    case ANSWER of
      'y','Y': begin
        writeln(ANSWER);
        writeln;
        write('WHAT GRADE: O-');
        RANKChr:=readkey;
        if (ord(RANKChr)<ord('6')) AND (ord(RANKChr)>ord('0')) then begin
          write(RANKChr);
          RANK:=ord(RANKChr)-ord('0');
          DisplayPredictedResult(RANK,YEAR,OLDSTOCK,NEWSTOCK,GRADE);
        end;
       end;
      'n','N': begin
          write(ANSWER);
          TEST:=TRUE;
        end;
      else begin
        ANSWER:=readkey;
      end;
    end;
  end;
end;

{*************************************************************************}

procedure OutputResults(var OUTFILE:text);

{Calls the individual output procedures in the unit to send results to file.}

var FILENAME:string;
begin
  clrscr;
  FILENAME:=OUTFILENAME;
  writeln('          ****    URL Officer Promotion Model    ****');
  writeln;writeln;
  writeln('Saving Output to file ',FILENAME);
  writeln;
  OutputGrade(RANK,YEAR,OLDSTOCK,GRADE,OUTFILE);
  OutputStock(1,YEAR,OLDSTOCK,GRADE,OUTFILE);
  OutputStock(2,YEAR,OLDSTOCK,GRADE,OUTFILE);
  OutputStock(3,YEAR,OLDSTOCK,GRADE,OUTFILE);
  OutputStock(4,YEAR,OLDSTOCK,GRADE,OUTFILE);
  OutputStock(5,YEAR,OLDSTOCK,GRADE,OUTFILE);
  OutputPredictedResult(1,YEAR,OLDSTOCK,NEWSTOCK,GRADE,OUTFILE);
  if YEAR=FirstYEAR then OutputActualResult(1,YEAR,OLDSTOCK,NEWSTOCK,GRADE,OUTFILE);
  OutputPredictedResult(2,YEAR,OLDSTOCK,NEWSTOCK,GRADE,OUTFILE);
  if YEAR=FirstYEAR then  OutputActualResult(2,YEAR,OLDSTOCK,NEWSTOCK,GRADE,OUTFILE);
  OutputPredictedResult(3,YEAR,OLDSTOCK,NEWSTOCK,GRADE,OUTFILE);
  if YEAR=FirstYEAR then  OutputActualResult(3,YEAR,OLDSTOCK,NEWSTOCK,GRADE,OUTFILE);
  OutputPredictedResult(4,YEAR,OLDSTOCK,NEWSTOCK,GRADE,OUTFILE);
  if YEAR=FirstYEAR then  OutputActualResult(4,YEAR,OLDSTOCK,NEWSTOCK,GRADE,OUTFILE);
  OutputPredictedResult(5,YEAR,OLDSTOCK,NEWSTOCK,GRADE,OUTFILE);
  if YEAR=FirstYEAR then  OutputActualResult(5,YEAR,OLDSTOCK,NEWSTOCK,GRADE,OUTFILE);
  writeln(OUTFILE);
  writeln;
  writeln('Output saved to file ',FILENAME);
  writeln;
  writeln('PRESS ANY KEY TO CONTINUE');
  readln;
  OutputFlowPointResult(FirstYEAR,YEAR,GRADE,OUTFILE);
end;

{*************************************************************************}
```

```
procedure UpdateWithResults (var OLDSTOCK:ArrayType; var GRADE:GradeArray);

{Initializes the OLDSTOCK variable for the beginning of the next promotion cycle. Totals
these values to the corresponding entry in the GRADE variable.}

var R,YOS,INV,LOSS,CONT,ACC:integer;
    RATE:real;

begin
  for R:= 1 to 5 do begin
    for YOS:=0 to 30 do begin
      INV:=NEWSTOCK[R,YOS].PINV;
      OLDSTOCK[R,YOS].INV:=NEWSTOCK[R,YOS].PINV;
      RATE:=DistRATE[R,YOS];
      OLDSTOCK[R,YOS].PlanRATE:=RATE;
      OLDSTOCK[R,YOS].PlanLOSS:=ROUND(INV*(100-RATE)/100);
      OLDSTOCK[R,YOS].PlanCONT:=ROUND(INV*RATE/100);
      OLDSTOCK[R,YOS].ACC:=ROUND(DistACC[R,YOS]*DATA[YEAR].ACCESSION);
    end;
  end;

  for R := 1 to 5 do begin
    INV:=0;   CONT:=0;   LOSS:=0;   ACC:=0;
    for YOS := 0 to 30 do begin
      INV  := INV + OLDSTOCK[R,YOS].INV;
      CONT := CONT + OLDSTOCK[R,YOS].PlanCONT;
      LOSS := LOSS + OLDSTOCK[R,YOS].PlanLOSS;
      ACC  := ACC + OLDSTOCK[R,YOS].ACC;
    end;
    GRADE[R,YEAR].INV :=INV;
    GRADE[R,YEAR].PlanCONT:=CONT;
    GRADE[R,YEAR].PlanLOSS:=LOSS;
    GRADE[R,YEAR].ACC :=ACC;
    GRADE[R,YEAR].PlanRATE:=ROUND(CONT/INV*10000)/10000;
    case R of
        1 : begin
              GRADE[R,YEAR].BegSTRENGTH:=GRADE[R,YEAR].PINV;
            end;
        2 : begin
              GRADE[R,YEAR].BegSTRENGTH:=GRADE[R,YEAR].PINV;
              GRADE[R,YEAR].FLOWPT:=DATA[YEAR].O2FP;
              GRADE[R,YEAR].OPP:=DATA[YEAR].O2OPP;
              GRADE[R,YEAR].AZPct:=0.0;
              GRADE[R,YEAR].IZPct:=1.0;
              GRADE[R,YEAR].BZPct:=0.0;
            end;
        3 : begin
              GRADE[R,YEAR].BegSTRENGTH:=GRADE[R,YEAR].PINV;
              GRADE[R,YEAR].FLOWPT:=DATA[YEAR].O3FP;
              GRADE[R,YEAR].OPP:=DATA[YEAR].O3OPP;
              GRADE[R,YEAR].AZPct:=0.095;
              GRADE[R,YEAR].IZPct:=0.9905;
              GRADE[R,YEAR].BZPct:=0.0;
             end;
        4 : begin
              GRADE[R,YEAR].AZPct:=0.021;
              GRADE[R,YEAR].IZPct:=0.943;
              GRADE[R,YEAR].BZPct:=0.036;
            end;
        5 : begin
              GRADE[R,YEAR].AZPct:=0.0199;
              GRADE[R,YEAR].IZPct:=0.9615;
              GRADE[R,YEAR].BZPct:=0.0186;
            end;
        6 : begin
              GRADE[R,YEAR].AZPct:=0.02;
              GRADE[R,YEAR].IZPct:=0.938;
              GRADE[R,YEAR].BZPct:=0.042;
            end;
    end;
  end;
end;

{*************************************************************************}
```

```
{*****************************   MAIN PROGRAM   ***************************}
{*************************************************************************}

begin
  clrscr;
  writeln('           ****    URL Officer Promotion Model    ****');
  writeln; writeln; writeln;

  write('WHAT IS THE BEGINNING YEAR? ');
  readln(FirstYEAR);
  YEAR:=FirstYEAR;

  InitAssignOutFile(YEAR,OUTFILENAME,OUTFILE);
  InitializeDistributions(DistACC,DistRATE,DistGRADE,NEWSTOCK);
  InitializeData(DATA,GRADE);
  SetUpStocks(OLDSTOCK);
  InitializeStocks(OLDSTOCK,GRADE);
  SelectGradeGoals(GRADE,OLDSTOCK);

  QueryUser(GRADE,OLDSTOCK,DATA);

  CalcSeniorSelections(GRADE,YEAR);
  CalcJOSelections(GRADE,OLDSTOCK);

  MakeList(5,LIST,TOP,GRADE[6,YEAR].FLOWPT);
  CalcZone(5,YEAR,LIST,TOP,HIGH,BOTTOM,GRADE,OLDSTOCK);
  CalcSeniorPromotions(5,YEAR,OLDSTOCK,TOP,BOTTOM);
  DisposeList(LIST);

  MakeList(4,LIST,TOP,GRADE[5,YEAR].FLOWPT);
  CalcZone(4,YEAR,LIST,TOP,HIGH,BOTTOM,GRADE,OLDSTOCK);
  CalcSeniorPromotions(4,YEAR,OLDSTOCK,TOP,BOTTOM);
  DisposeList(LIST);

  MakeList(3,LIST,TOP,GRADE[4,YEAR].FLOWPT);
  CalcZone(3,YEAR,LIST,TOP,HIGH,BOTTOM,GRADE,OLDSTOCK);
  CalcSeniorPromotions(3,YEAR,OLDSTOCK,TOP,BOTTOM);
  DisposeList(LIST);

  UpdateStocks(NEWSTOCK,GRADE);

  for RANK:=1 to 5 do begin
    DisplayPredictedResult(RANK,YEAR,OLDSTOCK,NEWSTOCK,GRADE);
    DisplayActualResult(RANK,YEAR,OLDSTOCK,NEWSTOCK,GRADE);
  end;
  clrscr;
  ReDisplay;
  clrscr;
  writeln; writeln; writeln;
  writeln('Writing results to outfile');
  OutputResults(OUTFILE);
  close(OUTFILE);
  clrscr;
  DONE:=FALSE;
  while DONE=FALSE do begin
    clrscr;
    writeln('           ****    URL Officer Promotion Model    ****');
    writeln; writeln; writeln;
    writeln(YEAR,' PROMOTIONS COMPLETED'); writeln;
    writeln('CONTINUE TO THE NEXT YEAR? . . . (Y)es . . . (N)o');
    ANSWER:=readkey;
    case ANSWER of
    'y','Y': begin
       YEAR:=YEAR+1;
       if YEAR<2000 then AssignOutFile(YEAR,OUTFILENAME,OUTFILE);
       if YEAR=2000 then begin
         OutputGrade(RANK,YEAR,OLDSTOCK,GRADE,OUTFILE);
         close(OUTFILE);
         DONE:=TRUE;
       end
       else begin
         SetUpStocks(OLDSTOCK);
         UpDateWithResults(OLDSTOCK,GRADE);
         SelectGradeGoals(GRADE,OLDSTOCK);
         QueryUser(GRADE,OLDSTOCK,DATA);
         CalcSeniorSelections(GRADE,YEAR);
```

```
          CalcJOSelections(GRADE,OLDSTOCK);
          MakeList(5,LIST,TOP,GRADE[6,YEAR].FLOWPT);
          CalcZone(5,YEAR,LIST,TOP,HIGH,BOTTOM,GRADE,OLDSTOCK);
          CalcSeniorPromotions(5,YEAR,OLDSTOCK,TOP,BOTTOM);
          DisposeList(LIST);

          MakeList(4,LIST,TOP,GRADE[5,YEAR].FLOWPT);
          CalcZone(4,YEAR,LIST,TOP,HIGH,BOTTOM,GRADE,OLDSTOCK);
          CalcSeniorPromotions(4,YEAR,OLDSTOCK,TOP,BOTTOM);
          DisposeList(LIST);

          MakeList(3,LIST,TOP,GRADE[4,YEAR].FLOWPT);
          CalcZone(3,YEAR,LIST,TOP,HIGH,BOTTOM,GRADE,OLDSTOCK);
          CalcSeniorPromotions(3,YEAR,OLDSTOCK,TOP,BOTTOM);
          DisposeList(LIST);

          UpdateStocks(NEWSTOCK,GRADE);

          for RANK:=1 to 5 do begin
            DisplayPredictedResult(RANK,YEAR,OLDSTOCK,NEWSTOCK,GRADE);
          end;
          ReDisplay;
          clrscr;
          OutputResults(OUTFILE);
          if YEAR=1999 then close(OUTFILE);
          clrscr;
        end;
      end;
    'n','N': begin
        clrscr; writeln;
        writeln('            ****    URL Officer Promotion Model    ****');
        writeln; writeln; writeln;
        DONE:=TRUE;
      end;
    end;

  end;

  writeln('END OFFICER PROMOTION MODEL');
  writeln; writeln; writeln;
  writeln('PRESS RETURN TO EXIT');
  readln;
end.
```

APPENDIX A.1 OUTPUT MODULE

```
Author: Robert P. Tortora
Written: September 1994

Unit OPM;

{*************************************************************************}
                              interface
{*************************************************************************}

var FirstYEAR:integer;

type OldRecordType = record
           GRADE    : integer;        YOS      : integer;
           INV      : integer;        PINV     : integer;
           STRENGTH:integer;
           RATE     : real;           PlanRATE : real;
           CONT     : integer;        PlanCONT : integer;
           LOSS     : integer;        PlanLOSS : integer;
           ELIG     : integer;
           PROMO    : integer;        NPROMO   : integer;
           XPROMO   : integer;        XNPROMO  : integer;
           SEL      : integer;        ACC      : integer;
          end;

     ArrayType = array[1..6,0..30] of OldRecordType;

var OLD : ArrayType;

type NewRecordType = record
           GRADE    : integer;        YOS      : integer;
           INV      : integer;        PINV     : integer;
          end;

     NewType = array[1..5,0..30] of NewRecordType;

var NEW : NewType;


type GradeRecord = record
           INV  : integer;          PINV  : integer;
           BEGSTRENGTH : integer;   ENDSTRENGTH : integer;
           RATE    : real;          PlanRATE : real;
           CONT    : integer;       PlanCONT : integer;
           LOSS    : integer;       PlanLOSS : integer;
           PROMO   : integer;       NPROMO   : integer;
           ACC     : integer;       ADDLoss  : integer;
           SEL     : integer;
           XPROMO : integer;        XNPROMO  : integer;
           ZONESIZE : integer;
           FLOWPT : real;           OPP     : real;
           AZPct  : real;           AZTot   : integer;
           IZPct  : real;           IZTot   : integer;
           BZPct  : real;           BZTot   : integer;
          end;

     GradeArray = array[0..6,1992..2000] of GradeRecord;

var G : GradeArray;

type NodePOINT = ^NodeType;
     NodeTYPE = record
                  NUMBER    : integer;
                  YOS       : real;
                  IZ,BZ,AZ : boolean;
                  NEXT: NodePOINT
                end;

type DataRecordType = record
```

```
            ACCESSION : integer;

            O2OPP  : real;     O2FP : real;
            O3OPP  : real;     O3FP : real;
            O4OPP  : real;     O4FP : real;
            O5OPP  : real;     O5FP : real;
            O6OPP  : real;     O6FP : real;

            O6OPABeg : integer; O6OPAEnd : integer;
            O5OPABeg : integer; O5OPAEnd : integer;
            O4OPABeg : integer; O4OPAEnd : integer;
            O3OPABeg : integer; O3OPAEnd : integer;

            O7PROMO  : integer;
            O6PROMO  : integer;
            O5PROMO  : integer;
            O4PROMO  : integer;
            O3PROMO  : integer;
          end;

    DataArray = array[1990..2000] of DataRecordType;

var RANK,YEAR:integer;
var OUTFILE:text;
var OUTFILENAME:string;
procedure InitAssignOutFile (YEAR:integer;var OUTFILENAME:string; var OUTFILE:text);
procedure AssignOutFile (YEAR:integer;var OUTFILENAME:string; var OUTFILE:text);

procedure DisplayStock (RANK,YEAR:integer;OLD:ArrayType;G:GradeArray);
procedure DisplayGrade (RANK,YEAR:integer;OLD:ArrayType;G:GradeArray);

procedure DisplayGradeOptions;                              :
procedure DisplayStockOptions;
procedure DisplayOption;

procedure DisplayPredictedResult (RANK,YEAR:integer; OLD:ArrayType;
                                  NEW:NewType; G:GradeArray);

procedure DisplayActualResult (RANK,YEAR:integer; OLD:ArrayType;
                               NEW:NewType; G:GradeArray);

procedure OutputStock (RANK,YEAR:integer; OLD:ArrayType;
                       G:GradeArray; var OUTFILE:text);

procedure OutputGrade (RANK,YEAR:integer; OLD:ArrayType;
                       G:GradeArray;var OUTFILE:text);

procedure OutputPredictedResult (RANK,YEAR:integer; OLD:ArrayType; NEW:NewType;
                                 G:GradeArray; var OUTFILE:text);

procedure OutputActualResult (RANK,YEAR:integer; OLD:ArrayType; NEW:NewType;
                              G:GradeArray; var OUTFILE:text);

procedure OutputFlowPointResult(FirstYear,Year:integer; G:GradeArray;
                                var OUTFILE:text);
{*************************************************************************}
                       implementation
{*************************************************************************}

Uses CRT;

procedure InitAssignOutfile(YEAR:integer;var OUTFILENAME:string ;var OUTFILE:text);
var DATE:array [1990..2000] of string;
var DRIVE:char;
begin
  writeln;
  case YEAR of
    1990: begin  DATE[YEAR]:='1990'; end;
    1991: begin  DATE[YEAR]:='1991'; end;
    1992: begin  DATE[YEAR]:='1992'; end;
    1993: begin  DATE[YEAR]:='1993'; end;
    1994: begin  DATE[YEAR]:='1994'; end;
    1995: begin  DATE[YEAR]:='1995'; end;
    1996: begin  DATE[YEAR]:='1996'; end;
    1997: begin  DATE[YEAR]:='1997'; end;
    1998: begin  DATE[YEAR]:='1998'; end;
```

```
    1999: begin  DATE[YEAR]:='1999'; end;
   end;
  writeln;
  writeln('The output will be sent each to the specified drive ');
  writeln('in the form of a:\OUT',YEAR,' for each cycle year.');
  writeln;
  write('PLEASE INPUT DRIVE LETTER   ');
  DRIVE:=readkey;
  writeln(DRIVE);
  OUTFILENAME:=DRIVE + ':\OUT' + DATE[YEAR];
  writeln('Assigning Outfile name   ', OUTFILENAME);
  writeln;
  assign(OUTFILE,OUTFILENAME);
  rewrite(OUTFILE);
  writeln('PRESS ANY KEY TO CONTINUE');
  readln;
  clrscr;
end;

{*************************************************************************}

procedure AssignOutfile(YEAR:integer;var OUTFILENAME:string ;var OUTFILE:text);
var DATE:array [1990..2000] of string;
begin
  clrscr;
  writeln('           ****    URL Officer Promotion Model    ****');
  writeln;
  case YEAR of
    1990: begin  DATE[YEAR]:='1990'; end;
    1991: begin  DATE[YEAR]:='1991'; end;
    1992: begin  DATE[YEAR]:='1992'; end;
    1993: begin  DATE[YEAR]:='1993'; end;                    :
    1994: begin  DATE[YEAR]:='1994'; end;
    1995: begin  DATE[YEAR]:='1995'; end;
    1996: begin  DATE[YEAR]:='1996'; end;
    1997: begin  DATE[YEAR]:='1997'; end;
    1998: begin  DATE[YEAR]:='1998'; end;
    1999: begin  DATE[YEAR]:='1999'; end;
   end;

  writeln;
  OUTFILENAME:=copy(OUTFILENAME,1,6);
  OUTFILENAME:=OUTFILENAME + DATE[YEAR];
  writeln('Assigning Outfile name   ', OUTFILENAME);
  writeln;
  assign(OUTFILE,OUTFILENAME);
  rewrite(OUTFILE);
  writeln('PRESS ANY KEY TO CONTINUE');
  readln;
  clrscr;
end;

{*************************************************************************}

procedure DisplayStock(RANK,YEAR:integer;OLD:ArrayType;G:GradeArray);
var YOS:integer;
begin
  clrscr;
  writeln('FISCAL YEAR ',YEAR,' O-',RANK,' PREDICTED TOTALS');
  writeln('-------------------------------------------------------------');
    writeln('YOS  INV  RATE  LOSS CONT  ACC  YOS INV  RATE  LOSS  CONT  ACC');
  for YOS:= 0 to 15 do begin
    write(' ',YOS,' ');
    if YOS<10 then write(' ');
    if OLD[RANK,YOS].STRENGTH<1000 then write(' ');
    if OLD[RANK,YOS].STRENGTH<100  then write(' ');
    if OLD[RANK,YOS].STRENGTH<10   then write(' ');
    write(OLD[RANK,YOS].STRENGTH,' ');
    if OLD[RANK,YOS].PlanRATE<>1.0 then write(' ');
    if OLD[RANK,YOS].PlanRATE<0.1 then write(' ');
    write(OLD[RANK,YOS].PlanRATE*100:4:2,' ');
    if OLD[RANK,YOS].PlanLOSS<100  then write(' ');
    if OLD[RANK,YOS].PlanLOSS<10   then write(' ');
    write(OLD[RANK,YOS].PlanLOSS,' ');
    if OLD[RANK,YOS].PlanCONT<1000 then write(' ');
    if OLD[RANK,YOS].PlanCONT<100  then write(' ');
```

```
    if OLD[RANK,YOS].PlanCONT<10   then write(' ');
    write(OLD[RANK,YOS].PlanCONT,' ');
    if OLD[RANK,YOS].ACC<1000 then write(' ');
    if OLD[RANK,YOS].ACC<100  then write(' ');
    if OLD[RANK,YOS].ACC<10   then write(' ');
    write(OLD[RANK,YOS].ACC,'   ');
    if (YOS+16<31) then begin
      write(' ',YOS+16,' ');
      if OLD[RANK,YOS+16].STRENGTH<1000 then write(' ');
      if OLD[RANK,YOS+16].STRENGTH<100  then write(' ');
      if OLD[RANK,YOS+16].STRENGTH<10   then write(' ');
      write(OLD[RANK,YOS+16].STRENGTH,' ');
      if OLD[RANK,YOS+16].PlanRATE<>1.0 then write(' ');
      if OLD[RANK,YOS+16].PlanRATE<0.1 then write(' ');
      write(OLD[RANK,YOS+16].PlanRATE*100:4:2);
      if OLD[RANK,YOS+16].PlanLOSS<100  then write(' ');
      if OLD[RANK,YOS+16].PlanLOSS<10   then write(' ');
      write(OLD[RANK,YOS+16].PlanLOSS,' ');
      if OLD[RANK,YOS+16].PlanCONT<1000 then write(' ');
      if OLD[RANK,YOS+16].PlanCONT<100  then write(' ');
      if OLD[RANK,YOS+16].PlanCONT<10   then write(' ');
      write(OLD[RANK,YOS+16].PlanCONT,'  ');
      if OLD[RANK,YOS+16].ACC<1000 then write(' ');
      if OLD[RANK,YOS+16].ACC<100  then write(' ');
      if OLD[RANK,YOS+16].ACC<10   then write(' ');
      write(OLD[RANK,YOS+16].ACC);
    end;
  writeln;
  end;
  writeln('------------------------------------------------------------');
  writeln('         INVENTORY    RATE   LOSS   CONT    ACC ');
  write('TOTAL     ');
  if G[RANK,YEAR].BEGSTRENGTH<10000 then write(' ');
  write(G[RANK,YEAR].BEGSTRENGTH,'      ');
  write(G[RANK,YEAR].PlanRATE*100:4:2,'  ');
  if G[RANK,YEAR].PlanLOSS<1000 then write(' ');
  write(G[RANK,YEAR].PlanLOSS,'   ');
  if G[RANK,YEAR].PlanCONT<1000 then write(' ');
  if G[RANK,YEAR].PlanCONT<100 then write(' ');
  if G[RANK,YEAR].PlanCONT<10 then write(' ');
  write(G[RANK,YEAR].PlanCONT,'  ');
  if G[RANK,YEAR].ACC<1000 then write(' ');
  if G[RANK,YEAR].ACC<100 then write(' ');
  if G[RANK,YEAR].ACC<10 then write(' ');
  write(G[RANK,YEAR].ACC,'   ');
  writeln;
end;

{*************************************************************************}

procedure DisplayGrade (RANK,YEAR:integer;OLD:ArrayType;G:GradeArray);
begin
  clrscr;
  writeln('           ****    URL Officer Promotion Model    ****');
  writeln;
  writeln('         CURRENT YEAR (',YEAR,') CUMULATIVE TOTALS');
  writeln(' ------------------------------------------------------------------');
  writeln('          BEGIN     END       EST    EST    EST');
  writeln('   RANK  STRENGTH  STRENGTH  RATE   LOSS   CONT   ACC   PP    OPP');
  write('   O-1    ',G[1,YEAR].BEGSTRENGTH,'     ',' N/A     ');
  write(G[1,YEAR].PlanRATE*100:4:2,'   ',G[1,YEAR].PlanLOSS,'   ');
  write(G[1,YEAR].PlanCONT,'  ',G[1,YEAR].ACC);
  writeln;
  write('   O-2    ',G[2,YEAR].BEGSTRENGTH,'     ',' N/A     ');
  write(G[2,YEAR].PlanRATE*100:4:2,'   ',G[2,YEAR].PlanLOSS,'   ');
  write(G[2,YEAR].PlanCONT,'    ',G[2,YEAR].ACC,'  ');
  write(G[2,YEAR].FLOWPT:4:2,'  ',G[2,YEAR].OPP*100:4:2,'  ');
  writeln;
  write('   O-3   ');
  if G[3,YEAR].BEGSTRENGTH<10000 then write(' ');
  write(G[3,YEAR].BEGSTRENGTH,'     ');
  write('  N/A     ');
  write(G[3,YEAR].PlanRATE*100:4:2,'  ',G[3,YEAR].PlanLOSS,'  ');
  if G[3,YEAR].PlanCONT<10000 then write(' ');
  write(G[3,YEAR].PlanCONT,'    ',G[3,YEAR].ACC,'  ');
  write(G[3,YEAR].FLOWPT:4:2,'  ',G[3,YEAR].OPP*100:4:2,'  ');
```

```
  writeln;
  write('   O-4    ',G[4,YEAR].BEGSTRENGTH,'      ');
  write(G[4,YEAR].ENDSTRENGTH,'      ',G[4,YEAR].PlanRATE*100:4:2,'   ');
  write(G[4,YEAR].PlanLOSS,'   ');
  write(G[4,YEAR].PlanCONT,'     ',G[4,YEAR].ACC,' ');
  write(G[4,YEAR].FLOWPT:4:2,'  ',G[4,YEAR].OPP*100:4:2,'  ');
  writeln;
  write('   O-5    ',G[5,YEAR].BEGSTRENGTH,'      ');
  write(G[5,YEAR].ENDSTRENGTH,'      ',G[5,YEAR].PlanRATE*100:4:2,'   ');
  write(G[5,YEAR].PlanLOSS,'   ');
  write(G[5,YEAR].PlanCONT,'   ');
  if G[5,YEAR].ACC<100 then write(' ');
  if G[5,YEAR].ACC<10 then write(' ');
  write(G[5,YEAR].ACC,' ');
  write(G[5,YEAR].FLOWPT:4:2,'  ',G[5,YEAR].OPP*100:4:2,'  ');
  writeln;
  write('   O-6    ',G[6,YEAR].BEGSTRENGTH,'      ');
  write(G[6,YEAR].ENDSTRENGTH,'      ',G[6,YEAR].PlanRATE*100:4:2,'   ');
  write(G[6,YEAR].PlanLOSS,'   ');
  write(G[6,YEAR].PlanCONT,'     ',G[6,YEAR].ACC,' ');
  write(G[6,YEAR].FLOWPT:4:2,'  ',G[6,YEAR].OPP*100:4:2,'  ');
  writeln;
  writeln(' ------------------------------------------------------------------');
  writeln;
end;

{*************************************************************************}

procedure DisplayGradeOptions;
begin
  writeln('Change: (A)ccessions        (B)egininning Strength    (D)isplay Grade Stock');
  writeln('        (E)nding Strength   (R)ate O-6 Continuation   (O)pportunity ');
  writeln('        Additional (L)osses (X) Continue with promotions ');
  writeln;
  writeln('                          *** NOTE ***');
  writeln(' O-1 through O-5 Continuation Rates can be changed for the individual');
  writeln(' Grade and YOS by using the Grade Stock display. This will cause a');
  writeln(' resulting change in the cumulative totals.');
end;

{*************************************************************************}

procedure DisplayStockOptions;
begin
  writeln('Change: (A)ccessions   (C)hange Rank  (I)nventory ');
  writeln('        (R)ate         (X) exit to Cumulative Window   ');
end;

{*************************************************************************}
procedure DisplayOption;
begin
  clrscr;
  writeln('           ****    URL Officer Promotion Model    ****');
  writeln;
  write('DISPLAY RESULTS AGAIN?  (Y)es or (N)o  ');
end;


{*************************************************************************}

procedure DisplayPredictedResult(RANK,YEAR:integer; OLD:ArrayType;
                                 NEW:NewType;G:GradeArray);

var YOS,COUNT:integer;
    INPUT:char;
begin
  clrscr;
  writeln('FISCAL YEAR ',YEAR,' O-',RANK,' PREDICTED RESULT');
  writeln('-------------------------------------------------------');
  writeln('YOS  INV  RATE  LOSS  CONT  ACC P-OUT  NP  P-IN ENDINV');
  COUNT:=0;
  for YOS:= 0 to 30 do begin
    if (OLD[RANK,YOS].STRENGTH<>0) then begin
       COUNT:=COUNT+1;
       if COUNT=21 then INPUT:=readkey;
       write(' ',YOS,' ');
```

```
        if YOS<10 then write(' ');
        if OLD[RANK,YOS].STRENGTH<1000 then write(' ');
        if OLD[RANK,YOS].STRENGTH<100  then write(' ');
        if OLD[RANK,YOS].STRENGTH<10   then write(' ');
        write(OLD[RANK,YOS].STRENGTH,' ');
        if OLD[RANK,YOS].PlanRATE<>1.0 then write(' ');
        if OLD[RANK,YOS].PlanRATE<0.1 then write(' ');
        write(OLD[RANK,YOS].PlanRATE*100:4:2,' ');
        if OLD[RANK,YOS].PlanLOSS<100  then write(' ');
        if OLD[RANK,YOS].PlanLOSS<10   then write(' ');
        write(OLD[RANK,YOS].PlanLOSS,'  ');
        if OLD[RANK,YOS].PlanCONT<1000 then write(' ');
        if OLD[RANK,YOS].PlanCONT<100  then write(' ');
        if OLD[RANK,YOS].PlanCONT<10   then write(' ');
        write(OLD[RANK,YOS].PlanCONT,' ');
        if OLD[RANK,YOS].ACC<1000 then write(' ');
        if OLD[RANK,YOS].ACC<100  then write(' ');
        if OLD[RANK,YOS].ACC<10   then write(' ');
        write(OLD[RANK,YOS].ACC,' ');
        if OLD[RANK,YOS].XPROMO<1000 then write(' ');
        if OLD[RANK,YOS].XPROMO<100  then write(' ');
        if OLD[RANK,YOS].XPROMO<10   then write(' ');
        write(OLD[RANK,YOS].XPROMO,'  ');
        if OLD[RANK,YOS].XNPROMO<1000 then write(' ');
        if OLD[RANK,YOS].XNPROMO<100  then write(' ');
        if OLD[RANK,YOS].XNPROMO<10   then write(' ');
        write(OLD[RANK,YOS].XNPROMO,'  ');
        if (OLD[RANK-1,YOS].XPROMO<1000) AND (RANK<>1) then write(' ');
        if (OLD[RANK-1,YOS].XPROMO<100)  AND (RANK<>1) then write(' ');
        if (OLD[RANK-1,YOS].XPROMO<10)   AND (RANK<>1) then write(' ');
        if RANK<>1 then write(OLD[RANK-1,YOS].XPROMO,'  ');
        if RANK=1 then write('   0   ');
        if NEW[RANK,YOS+1].PINV<1000 then write(' ');
        if NEW[RANK,YOS+1].PINV<100  then write(' ');
        if NEW[RANK,YOS+1].PINV<10   then write(' ');
        write(NEW[RANK,YOS+1].PINV);
        writeln;
      end;
  end;
  writeln('------------------------------------------------------------');
  write('TOT ');
  write(G[RANK,YEAR].BEGSTRENGTH,'  ');
  write(G[RANK,YEAR].PlanRATE*100:4:2,' ');
  write(G[RANK,YEAR].PlanLOSS,'   ');
  write(G[RANK,YEAR].PlanCONT,'  ');
  write(G[RANK,YEAR].ACC,'  ');
  write(G[RANK+1,YEAR].XPROMO,'   ');
  write(G[RANK,YEAR].XNPROMO,'  ');
  write(G[RANK,YEAR].XPROMO,'  ');
  write(G[RANK,YEAR+1].PINV);
  writeln;
  write('                    PRESS ANY KEY TO CONTINUE');
  INPUT:=readkey;
  clrscr;
end;

{*****************************************************************************}

procedure DisplayActualResult(RANK,YEAR:integer; OLD:ArrayType;
                              NEW:NewType;G:GradeArray);

var YOS,COUNT:integer;
var INPUT:char;
begin
  clrscr;
  COUNT:=0;
  writeln('FISCAL YEAR ',YEAR,' O-',RANK,' ACTUAL RESULT');
  writeln('------------------------------------------------------------');
  writeln('YOS  INV  RATE  LOSS  CONT  ACC P-OUT  NP  P-IN ENDINV PINV');
  for YOS:= 0 to 30 do begin
    if (OLD[RANK,YOS].INV<>0) then begin
       COUNT:=COUNT+1;
       if COUNT=21 then INPUT:=readkey;
       write(' ',YOS,' ');
       if YOS<10 then write(' ');
       if OLD[RANK,YOS].INV<1000 then write(' ');
```

```
        if OLD[RANK,YOS].INV<100  then write(' ');
        if OLD[RANK,YOS].INV<10   then write(' ');
        write(OLD[RANK,YOS].INV,' ');
        if OLD[RANK,YOS].RATE<>100.0 then write(' ');
        if OLD[RANK,YOS].RATE<10.0 then write(' ');
        write(OLD[RANK,YOS].RATE:4:2,' ');
        if OLD[RANK,YOS].LOSS<100  then write(' ');
        if OLD[RANK,YOS].LOSS<10   then write(' ');
        write(OLD[RANK,YOS].LOSS,'  ');
        if OLD[RANK,YOS].CONT<1000 then write(' ');
        if OLD[RANK,YOS].CONT<100  then write(' ');
        if OLD[RANK,YOS].CONT<10   then write(' ');
        write(OLD[RANK,YOS].CONT,' ');
        if OLD[RANK,YOS].ACC<1000 then write(' ');
        if OLD[RANK,YOS].ACC<100  then write(' ');
        if OLD[RANK,YOS].ACC<10   then write(' ');
        write(OLD[RANK,YOS].ACC,' ');
        if OLD[RANK,YOS].PROMO<1000 then write(' ');
        if OLD[RANK,YOS].PROMO<100  then write(' ');
        if OLD[RANK,YOS].PROMO<10   then write(' ');
        write(OLD[RANK,YOS].PROMO,'  ');
        if OLD[RANK,YOS].NPROMO<1000 then write(' ');
        if OLD[RANK,YOS].NPROMO<100  then write(' ');
        if OLD[RANK,YOS].NPROMO<10   then write(' ');
        write(OLD[RANK,YOS].NPROMO,'  ');
        if (OLD[RANK-1,YOS].PROMO<1000) AND (RANK<>1) then write(' ');
        if (OLD[RANK-1,YOS].PROMO<100)  AND (RANK<>1) then write(' ');
        if (OLD[RANK-1,YOS].PROMO<10)   AND (RANK<>1) then write(' ');
        if RANK<>1 then write(OLD[RANK-1,YOS].PROMO,'  ');
        if RANK=1 then write('   0   ');
        if NEW[RANK,YOS+1].INV<1000 then write(' ');
        if NEW[RANK,YOS+1].INV<100  then write(' ');
        if NEW[RANK,YOS+1].INV<10   then write(' ');
        write(NEW[RANK,YOS+1].INV,'  ');
        if NEW[RANK,YOS+1].PINV<1000 then write(' ');
        if NEW[RANK,YOS+1].PINV<100  then write(' ');
        if NEW[RANK,YOS+1].PINV<10   then write(' ');
        write(NEW[RANK,YOS+1].PINV);
        writeln;
      end;
    end;
    writeln('------------------------------------------------------------');
    write('TOT ');
    write(G[RANK,YEAR].INV,'  ');
    write(G[RANK,YEAR].RATE*100:4:2,' ');
    write(G[RANK,YEAR].LOSS,'   ');
    write(G[RANK,YEAR].CONT,'  ');
    write(G[RANK,YEAR].ACC,'  ');
    write(G[RANK+1,YEAR].XPROMO,'   ');
    write(G[RANK,YEAR].NPROMO,'  ');
    write(G[RANK,YEAR].XPROMO,'  ');
    write(G[RANK,YEAR+1].INV,'   ');
    write(G[RANK,YEAR+1].PINV,'   ');
    writeln;
    write('                  PRESS ANY KEY TO CONTINUE');
    INPUT:=readkey;
    clrscr;
  end;

{*************************************************************************}

  procedure OutputStock (RANK,YEAR:integer;OLD:ArrayType;G:GradeArray;
                         var OUTFILE:text);
  var YOS:integer;
  begin
    writeln(OUTFILE,'FISCAL YEAR ',YEAR,' O-',RANK,' PREDICTED TOTALS');
    writeln(OUTFILE,'------------------------------------------------------------');
    writeln(OUTFILE,'YOS  INV  RATE  LOSS CONT  ACC  YOS INV  RATE  LOSS  CONT  ACC');
    for YOS:= 0 to 15 do begin
      write(OUTFILE,' ',YOS,' ');
      if YOS<10 then write(OUTFILE,' ');
      if OLD[RANK,YOS].STRENGTH<1000 then write(OUTFILE,' ');
      if OLD[RANK,YOS].STRENGTH<100  then write(OUTFILE,' ');
      if OLD[RANK,YOS].STRENGTH<10   then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS].STRENGTH,' ');
      if OLD[RANK,YOS].PlanRATE<>1.0 then write(OUTFILE,' ');
```

```
    if OLD[RANK,YOS].PlanRATE<0.1  then write(OUTFILE,' ');
{    if OLD[RANK,YOS].PlanRATE<0.01 then write(OUTFILE,' ');}
    write(OUTFILE,OLD[RANK,YOS].PlanRATE*100:4:2,' ');
    if OLD[RANK,YOS].PlanLOSS<100  then write(OUTFILE,' ');
    if OLD[RANK,YOS].PlanLOSS<10   then write(OUTFILE,' ');
    write(OUTFILE,OLD[RANK,YOS].PlanLOSS,' ');
    if OLD[RANK,YOS].PlanCONT<1000 then write(OUTFILE,' ');
    if OLD[RANK,YOS].PlanCONT<100  then write(OUTFILE,' ');
    if OLD[RANK,YOS].PlanCONT<10   then write(OUTFILE,' ');
    write(OUTFILE,OLD[RANK,YOS].PlanCONT,' ');
    if OLD[RANK,YOS].ACC<1000 then write(OUTFILE,' ');
    if OLD[RANK,YOS].ACC<100  then write(OUTFILE,' ');
    if OLD[RANK,YOS].ACC<10   then write(OUTFILE,' ');
    write(OUTFILE,OLD[RANK,YOS].ACC,'   ');
    if (YOS+16<31) then begin
      write(OUTFILE,' ',YOS+16,' ');
      if OLD[RANK,YOS+16].STRENGTH<1000 then write(OUTFILE,' ');
      if OLD[RANK,YOS+16].STRENGTH<100  then write(OUTFILE,' ');
      if OLD[RANK,YOS+16].STRENGTH<10   then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS+16].STRENGTH,' ');
      if OLD[RANK,YOS+16].PlanRATE<>1.0 then write(OUTFILE,' ');
      if OLD[RANK,YOS+16].PlanRATE<0.1 then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS+16].PlanRATE*100:4:2);
      if OLD[RANK,YOS+16].PlanLOSS<100  then write(OUTFILE,' ');
      if OLD[RANK,YOS+16].PlanLOSS<10   then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS+16].PlanLOSS,' ');
      if OLD[RANK,YOS+16].PlanCONT<1000 then write(OUTFILE,' ');
      if OLD[RANK,YOS+16].PlanCONT<100  then write(OUTFILE,' ');
      if OLD[RANK,YOS+16].PlanCONT<10   then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS+16].PlanCONT,'  ');
      if OLD[RANK,YOS+16].ACC<1000 then write(OUTFILE,' ');
      if OLD[RANK,YOS+16].ACC<100  then write(OUTFILE,' ');
      if OLD[RANK,YOS+16].ACC<10   then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS+16].ACC);
    end;
  writeln(OUTFILE);
  end;
  writeln(OUTFILE,'-------------------------------------------------------------');
  writeln(OUTFILE,'         INVENTORY    RATE   LOSS   CONT    ACC ');
  write(OUTFILE,'TOTAL     ');
  if G[RANK,YEAR].BEGSTRENGTH<10000 then write(OUTFILE,' ');
  write(OUTFILE,G[RANK,YEAR].BEGSTRENGTH,'      ');
  write(OUTFILE,G[RANK,YEAR].PlanRATE*100:4:2,'  ');
  if G[RANK,YEAR].PlanLOSS<1000 then write(OUTFILE,' ');
  write(OUTFILE,G[RANK,YEAR].PlanLOSS,'   ');
  if G[RANK,YEAR].PlanCONT<1000 then write(OUTFILE,' ');
  if G[RANK,YEAR].PlanCONT<100 then write(OUTFILE,' ');
  if G[RANK,YEAR].PlanCONT<10 then write(OUTFILE,' ');
  write(OUTFILE,G[RANK,YEAR].PlanCONT,'  ');
  if G[RANK,YEAR].ACC<1000 then write(OUTFILE,' ');
  if G[RANK,YEAR].ACC<100 then write(OUTFILE,' ');
  if G[RANK,YEAR].ACC<10 then write(OUTFILE,' ');
  write(OUTFILE,G[RANK,YEAR].ACC,'   ');
  writeln(OUTFILE);writeln(OUTFILE);
end;

{************************************************************************}

procedure OutputGrade(RANK,YEAR:integer; OLD:ArrayType;
                      G:GradeArray; var OUTFILE:text);
begin
  writeln(OUTFILE,'           ****    URL Officer Promotion Model    ****');
  writeln(OUTFILE);
  writeln(OUTFILE,'        CURRENT YEAR (',YEAR,') CUMULATIVE TOTALS');
  writeln(OUTFILE,' ---------------------------------------------------------------------');
  writeln(OUTFILE,'          BEGIN      END        EST    EST    EST');
  writeln(OUTFILE,'   RANK  STRENGTH   STRENGTH   RATE   LOSS   CONT   ACC   PP    OPP');
  write(OUTFILE,'   O-1    ',G[1,YEAR].BEGSTRENGTH,'      ',' N/A     ');
  write(OUTFILE,G[1,YEAR].PlanRATE*100:4:2,'   ',G[1,YEAR].PlanLOSS,'   ');
  write(OUTFILE,G[1,YEAR].PlanCONT,'  ',G[1,YEAR].ACC);
  writeln(OUTFILE);
  write(OUTFILE,'   O-2    ',G[2,YEAR].BEGSTRENGTH,'      ',' N/A     ');
  write(OUTFILE,G[2,YEAR].PlanRATE*100:4:2,'   ',G[2,YEAR].PlanLOSS,'   ');
  write(OUTFILE,G[2,YEAR].PlanCONT,'    ',G[2,YEAR].ACC,'  ');
  write(OUTFILE,G[2,YEAR].FLOWPT:4:2,'  ',G[2,YEAR].OPP*100:4:2,'  ');
  writeln(OUTFILE);
```

```
  write(OUTFILE,'   O-3   ');
  if G[3,YEAR].PlanCONT<10000 then write(OUTFILE,' ');
  write(OUTFILE,G[3,YEAR].BEGSTRENGTH,'      ');
  write(OUTFILE,'  N/A     ');
  write(OUTFILE,G[3,YEAR].PlanRATE*100:4:2,'  ',G[3,YEAR].PlanLOSS,'  ');
  if G[3,YEAR].PlanCONT<10000 then write(OUTFILE,' ');
  write(OUTFILE,G[3,YEAR].PlanCONT,'    ',G[3,YEAR].ACC,'  ');
  write(OUTFILE,G[3,YEAR].FLOWPT:4:2,'  ',G[3,YEAR].OPP*100:4:2,'  ');
  writeln(OUTFILE);
  write(OUTFILE,'   O-4    ',G[4,YEAR].BEGSTRENGTH,'      ');
  write(OUTFILE,G[4,YEAR].ENDSTRENGTH,'     ',G[4,YEAR].PlanRATE*100:4:2,'   ');
  write(OUTFILE,G[4,YEAR].PlanLOSS,'   ');
  write(OUTFILE,G[4,YEAR].PlanCONT,'    ',G[4,YEAR].ACC,' ');
  write(OUTFILE,G[4,YEAR].FLOWPT:4:2,'  ',G[4,YEAR].OPP*100:4:2,'  ');
  writeln(OUTFILE);
  write(OUTFILE,'   O-5    ',G[5,YEAR].BEGSTRENGTH,'      ');
  write(OUTFILE,G[5,YEAR].ENDSTRENGTH,'     ',G[5,YEAR].PlanRATE*100:4:2,'   ');
  write(OUTFILE,G[5,YEAR].PlanLOSS,'   ');
  write(OUTFILE,G[5,YEAR].PlanCONT,'   ');
  if G[5,YEAR].ACC<100 then write(OUTFILE,' ');
  if G[5,YEAR].ACC<10 then write(OUTFILE,' ');
  write(OUTFILE,G[5,YEAR].ACC,' ');
  write(OUTFILE,G[5,YEAR].FLOWPT:4:2,'  ',G[5,YEAR].OPP*100:4:2,'  ');
  writeln(OUTFILE);
  write(OUTFILE,'   O-6    ',G[6,YEAR].BEGSTRENGTH,'      ');
  write(OUTFILE,G[6,YEAR].ENDSTRENGTH,'     ',G[6,YEAR].PlanRATE*100:4:2,'   ');
  write(OUTFILE,G[6,YEAR].PlanLOSS,'   ');
  write(OUTFILE,G[6,YEAR].PlanCONT,'    ',G[6,YEAR].ACC,' ');
  write(OUTFILE,G[6,YEAR].FLOWPT:4:2,'  ',G[6,YEAR].OPP*100:4:2,'  ');
  writeln(OUTFILE);
  writeln(OUTFILE,' ------------------------------------------------------------------------');
  writeln(OUTFILE);writeln(OUTFILE);                    :
end;

{*************************************************************************}

procedure OutputPredictedResult (RANK,YEAR:integer;OLD:ArrayType;NEW:NewType;
                                 G:GradeArray; var OUTFILE:text);

var YOS:integer;
begin
  writeln(OUTFILE,'FISCAL YEAR ',YEAR,' O-',RANK,' PREDICTED RESULT');
  writeln(OUTFILE,'-------------------------------------------------------------');
  writeln(OUTFILE,'YOS  INV  RATE  LOSS  CONT  ACC P-OUT  NP  P-IN ENDINV');
  for YOS:= 0 to 30 do begin
    if (OLD[RANK,YOS].STRENGTH>0) then begin
       write(OUTFILE,' ',YOS,' ');
       if YOS<10 then write(OUTFILE,' ');
       if OLD[RANK,YOS].STRENGTH<1000 then write(OUTFILE,' ');
       if OLD[RANK,YOS].STRENGTH<100  then write(OUTFILE,' ');
       if OLD[RANK,YOS].STRENGTH<10   then write(OUTFILE,' ');
       write(OUTFILE,OLD[RANK,YOS].STRENGTH,' ');
       if OLD[RANK,YOS].PlanRATE<1.0 then write(OUTFILE,' ');
       if OLD[RANK,YOS].PlanRATE<0.1 then write(OUTFILE,' ');
       write(OUTFILE,OLD[RANK,YOS].PlanRATE*100:4:2,' ');
       if OLD[RANK,YOS].PlanLOSS<100  then write(OUTFILE,' ');
       if OLD[RANK,YOS].PlanLOSS<10   then write(OUTFILE,' ');
       write(OUTFILE,OLD[RANK,YOS].PlanLOSS,'  ');
       if OLD[RANK,YOS].PlanCONT<1000 then write(OUTFILE,' ');
       if OLD[RANK,YOS].PlanCONT<100  then write(OUTFILE,' ');
       if OLD[RANK,YOS].PlanCONT<10   then write(OUTFILE,' ');
       write(OUTFILE,OLD[RANK,YOS].PlanCONT,' ');
       if OLD[RANK,YOS].ACC<1000 then write(OUTFILE,' ');
       if OLD[RANK,YOS].ACC<100  then write(OUTFILE,' ');
       if OLD[RANK,YOS].ACC<10   then write(OUTFILE,' ');
       write(OUTFILE,OLD[RANK,YOS].ACC,' ');
       if OLD[RANK,YOS].XPROMO<1000 then write(OUTFILE,' ');
       if OLD[RANK,YOS].XPROMO<100  then write(OUTFILE,' ');
       if OLD[RANK,YOS].XPROMO<10   then write(OUTFILE,' ');
       write(OUTFILE,OLD[RANK,YOS].XPROMO,'  ');
       if OLD[RANK,YOS].XNPROMO<1000 then write(OUTFILE,' ');
       if OLD[RANK,YOS].XNPROMO<100  then write(OUTFILE,' ');
       if OLD[RANK,YOS].XNPROMO<10   then write(OUTFILE,' ');
       write(OUTFILE,OLD[RANK,YOS].XNPROMO,'  ');
       if (OLD[RANK-1,YOS].XPROMO<1000) AND (RANK<>1) then write(OUTFILE,' ');
       if (OLD[RANK-1,YOS].XPROMO<100)  AND (RANK<>1) then write(OUTFILE,' ');
```

```
      if (OLD[RANK-1,YOS].XPROMO<10)   AND (RANK<>1) then write(OUTFILE,' ');
      if RANK<>1 then write(OUTFILE,OLD[RANK-1,YOS].XPROMO,'  ');
      if RANK=1 then write(OUTFILE,'   0   ');
      if NEW[RANK,YOS+1].PINV<1000 then write(OUTFILE,' ');
      if NEW[RANK,YOS+1].PINV<100  then write(OUTFILE,' ');
      if NEW[RANK,YOS+1].PINV<10   then write(OUTFILE,' ');
      write(OUTFILE,NEW[RANK,YOS+1].PINV);
      writeln(OUTFILE);
    end;
  end;
  writeln(OUTFILE,'------------------------------------------------------------');
  write(OUTFILE,'TOT ');
  write(OUTFILE,G[RANK,YEAR].BEGSTRENGTH,'  ');
  write(OUTFILE,G[RANK,YEAR].PlanRATE*100:4:2,' ');
  write(OUTFILE,G[RANK,YEAR].PlanLOSS,'   ');
  write(OUTFILE,G[RANK,YEAR].PlanCONT,'  ');
  write(OUTFILE,G[RANK,YEAR].ACC,'  ');
  write(OUTFILE,G[RANK+1,YEAR].XPROMO,'   ');
  write(OUTFILE,G[RANK,YEAR].XNPROMO,'  ');
  write(OUTFILE,G[RANK,YEAR].XPROMO,'  ');
  write(OUTFILE,G[RANK,YEAR+1].PINV);
  writeln(OUTFILE);writeln(OUTFILE);
end;

{*************************************************************************}

procedure OutputActualResult (RANK,YEAR:integer;OLD:ArrayType;NEW:NewType;
                              G:GradeArray; var OUTFILE:text);

var YOS:integer;
begin
  writeln(OUTFILE,'FISCAL YEAR ',YEAR,' O-',RANK,' ACTUAL RESULT');
  writeln(OUTFILE,'------------------------------------------------------------');
  writeln(OUTFILE,'YOS  INV  RATE  LOSS  CONT  ACC P-OUT  NP  P-IN ENDINV  PINV');
  for YOS:= 0 to 30 do begin
    if (OLD[RANK,YOS].INV<>0) then begin
      write(OUTFILE,' ',YOS,' ');
      if YOS<10 then write(OUTFILE,' ');
      if OLD[RANK,YOS].INV<1000 then write(OUTFILE,' ');
      if OLD[RANK,YOS].INV<100  then write(OUTFILE,' ');
      if OLD[RANK,YOS].INV<10   then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS].INV,' ');
      if OLD[RANK,YOS].RATE<100.0 then write(OUTFILE,' ');
      if OLD[RANK,YOS].RATE<10.0 then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS].RATE:4:2,' ');
      if OLD[RANK,YOS].LOSS<100  then write(OUTFILE,' ');
      if OLD[RANK,YOS].LOSS<10   then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS].LOSS,'  ');
      if OLD[RANK,YOS].CONT<1000 then write(OUTFILE,' ');
      if OLD[RANK,YOS].CONT<100  then write(OUTFILE,' ');
      if OLD[RANK,YOS].CONT<10   then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS].CONT,' ');
      if OLD[RANK,YOS].ACC<1000 then write(OUTFILE,' ');
      if OLD[RANK,YOS].ACC<100  then write(OUTFILE,' ');
      if OLD[RANK,YOS].ACC<10   then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS].ACC,' ');
      if OLD[RANK,YOS].PROMO<1000 then write(OUTFILE,' ');
      if OLD[RANK,YOS].PROMO<100  then write(OUTFILE,' ');
      if OLD[RANK,YOS].PROMO<10   then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS].PROMO,'  ');
      if OLD[RANK,YOS].NPROMO<1000 then write(OUTFILE,' ');
      if OLD[RANK,YOS].NPROMO<100  then write(OUTFILE,' ');
      if OLD[RANK,YOS].NPROMO<10   then write(OUTFILE,' ');
      write(OUTFILE,OLD[RANK,YOS].NPROMO,'  ');
      if (OLD[RANK-1,YOS].PROMO<1000) AND (RANK<>1) then write(OUTFILE,' ');
      if (OLD[RANK-1,YOS].PROMO<100)  AND (RANK<>1) then write(OUTFILE,' ');
      if (OLD[RANK-1,YOS].PROMO<10)   AND (RANK<>1) then write(OUTFILE,' ');
      if RANK<>1 then write(OUTFILE,OLD[RANK-1,YOS].PROMO,'  ');
      if RANK=1 then write(OUTFILE,'   0   ');
      if NEW[RANK,YOS+1].INV<1000 then write(OUTFILE,' ');
      if NEW[RANK,YOS+1].INV<100  then write(OUTFILE,' ');
      if NEW[RANK,YOS+1].INV<10   then write(OUTFILE,' ');
      write(OUTFILE,NEW[RANK,YOS+1].INV,'    ');
      if NEW[RANK,YOS+1].PINV<1000 then write(' ');
      if NEW[RANK,YOS+1].PINV<100  then write(' ');
      if NEW[RANK,YOS+1].PINV<10   then write(' ');
```

```
      write(OUTFILE,NEW[RANK,YOS+1].PINV);
      writeln(OUTFILE);
    end;
  end;
  writeln(OUTFILE,'------------------------------------------------------------------');
  write(OUTFILE,'TOT ');
  write(OUTFILE,G[RANK,YEAR].INV,'  ');
  write(OUTFILE,G[RANK,YEAR].RATE*100:4:2,' ');
  write(OUTFILE,G[RANK,YEAR].LOSS,'   ');
  write(OUTFILE,G[RANK,YEAR].CONT,'  ');
  write(OUTFILE,G[RANK,YEAR].ACC,'  ');
  write(OUTFILE,G[RANK+1,YEAR].XPROMO,'   ');
  write(OUTFILE,G[RANK,YEAR].NPROMO,'  ');
  write(OUTFILE,G[RANK,YEAR].XPROMO,'  ');
  write(OUTFILE,G[RANK,YEAR+1].INV,'    ');
  write(OUTFILE,G[RANK,YEAR+1].PINV,'  ');
  writeln(OUTFILE);writeln(OUTFILE);
end;

{*************************************************************************}

procedure OutputFlowPointResult(FirstYear,Year:integer; G:GradeArray;
                                var OUTFILE:text);
var Y:integer;

begin
  clrscr;
  writeln(OUTFILE);
  writeln('          ****    URL Officer Promotion Model    ****');
  writeln;
  writeln('CURRENT FLOWPOINT RESULTS');
  writeln(OUTFILE,'CURRENT FLOWPOINT RESULTS');
  writeln; writeln(OUTFILE);
  write('GRADE  ');
  write(OUTFILE,'GRADE ');
  for Y:=FirstYear to Year+1 do begin
    write(Y,'  ');
    write(OUTFILE,Y,'  ');
  end;
  writeln; writeln(OUTFILE);
  write(' O-6   ');
  write(OUTFILE,' O-6   ');
  for Y:=FirstYear to Year+1 do begin
    write(G[6,Y].FLOWPT:4:2,' ');
    write(OUTFILE,G[6,Y].FLOWPT:4:2,' ');
  end;
  writeln; writeln(OUTFILE);

  write(' O-5   ');
  write(OUTFILE,' O-5   ');
  for Y:=FirstYear to Year+1 do begin
    write(G[5,Y].FLOWPT:4:2,' ');
    write(OUTFILE,G[5,Y].FLOWPT:4:2,' ');
  end;
  writeln; writeln(OUTFILE);

  write(' O-4   ');
  write(OUTFILE,' O-4   ');
  for Y:=FirstYear to Year+1 do begin
    write(G[4,Y].FLOWPT:4:2,' ');
    write(OUTFILE,G[4,Y].FLOWPT:4:2,' ');
  end;
  writeln; writeln(OUTFILE); writeln(OUTFILE);
  writeln;
  writeln('PRESS ANY KEY TO CONTINUE');
  readln;
  clrscr;
end;
end.
```

APPENDIX B OMF DATA 1989-1993

SEPT 1989 OFFICER MASTER FILE INVENTORY AND CONTINUATION RATES

YOS	O-1 INV	O-1 RATE	O-2 INV	O-2 RATE	O-3 INV	O-3 RATE	O-4 INV	O-4 RATE	O-5 INV	O-5 RATE	O-6 INV	O-6 RATE
0	3479	96.8	0	0	7	100	0	0	1	100	0	0
1	3401	97.9	99	92.9	13	92.3	1	100	0	0	0	0
2	29	96.6	3810	96.2	10	90	0	0	0	0	0	0
3	3	66.7	3897	87.3	11	81.8	3	100	0	0	0	0
4	0	0	499	63.3	3073	87.9	1	0	0	0	0	0
5	0	0	9	55.6	2274	88.1	1	100	0	0	0	0
6	0	0	0	0	2277	81.9	1	0	2	100	1	100
7	0	0	0	0	1985	81.8	4	75	1	0	0	0
8	1	0	0	0	1621	90.1	13	92.3	2	50	1	100
9	0	0	0	0	1385	94.3	38	100	1	100	1	100
10	0	0	0	0	363	51.8	922	96.3	2	100	0	0
11	0	0	0	0	23	78.3	968	93.2	4	75	1	100
12	0	0	0	0	8	75	970	94	2	100	0	0
13	0	0	0	0	5	100	962	95.4	17	100	1	100
14	0	0	0	0	2	100	905	97	41	100	0	0
15	0	0	0	0	1	100	492	93.9	455	99.8	2	100
16	0	0	0	0	0	0	282	95.7	616	100	2	100
17	0	0	0	0	0	0	204	93.1	586	97.8	0	0
18	0	0	0	0	0	0	186	87.1	584	97.1	4	100
19	0	0	0	0	0	0	159	15.1	584	84.6	13	100
20	0	0	0	0	0	0	22	0	568	84.2	53	100
21	0	0	0	0	0	0	2	0	275	80.4	214	97.2
22	0	0	0	0	0	0	0	0	99	76.8	317	98.4
23	0	0	0	0	0	0	0	0	94	73.4	265	96.2
24	0	0	0	0	0	0	1	100	55	76.4	251	92
25	0	0	0	0	0	0	0	0	33	15.2	217	89.4
26	0	0	0	0	0	0	1	100	5	40	186	88.2
27	0	0	0	0	0	0	0	0	3	0	154	85.1
28	0	0	0	0	0	0	0	0	0	0	148	77.7
29	0	0	0	0	0	0	0	0	0	0	81	17.3
30	0	0	0	0	0	0	0	0	0	0	11	18.2
TOT	7017	97.2	8316	90	13069	85.9	6149	92.3	4042	90.9	1929	88.5

SEPT 1990 OFFICER MASTER FILE INVENTORY AND CONTINUATION RATES

YOS	O-1 INV	O-1 RATE	O-2 INV	O-2 RATE	O-3 INV	O-3 RATE	O-4 INV	O-4 RATE	O-5 INV	O-5 RATE	O-6 INV	O-6 RATE
0	3443	94.5	0	0	4	75	1	100	0	0	0	0
1	3438	95.5	32	100	8	87.5	0	0	1	100	0	0
2	11	81.8	3419	95.9	10	90	1	100	0	0	0	0
3	5	40	3687	86.3	16	81.3	0	0	0	0	0	0
4	1	100	395	64.1	3029	85.6	2	50	0	0	0	0
5	0	0	12	66.7	3006	88.6	1	100	0	0	0	0
6	0	0	0	0	2011	83.3	2	100	0	0	0	0
7	0	0	0	0	1871	82.1	1	0	1	100	3	66.7
8	0	0	0	0	1621	90.6	16	87.5	1	100	0	0
9	0	0	0	0	1404	93.8	81	97.5	1	100	1	0
10	0	0	0	0	355	30.4	994	96.2	1	100	1	0
11	0	0	0	0	51	27.5	1028	94.1	2	100	0	0
12	0	0	0	0	12	50	909	96	6	100	1	0
13	0	0	0	0	3	66.7	891	97.5	26	100	0	0
14	0	0	0	0	3	100	865	95.7	73	97.3	1	100
15	0	0	0	0	2	100	380	88.7	540	99.3	0	0
16	0	0	0	0	1	100	291	89.7	627	99.7	2	100
17	0	0	0	0	0	0	259	94.2	625	98.7	3	100
18	0	0	0	0	0	0	188	87.2	570	96.5	3	100
19	0	0	0	0	0	0	161	17.4	563	88.1	14	92.9
20	0	0	0	0	0	0	21	4.8	477	89.5	32	96.9
21	0	0	0	0	0	0	0	0	329	82.4	204	98.5
22	0	0	0	0	0	0	0	0	149	53.7	279	98.2
23	0	0	0	0	0	0	0	0	73	43.8	314	96.2
24	0	0	0	0	0	0	0	0	69	47.8	254	90.9
25	0	0	0	0	0	0	0	0	42	7.1	231	69.7
26	0	0	0	0	0	0	0	0	5	20	189	60.8
27	0	0	0	0	0	0	1	100	2	50	148	52.7
28	0	0	0	0	0	0	0	0	0	0	121	49.6
29	0	0	0	0	0	0	0	0	0	0	112	8.9
30	0	0	0	0	0	0	0	0	0	0	15	6.7
TOT	6953	94.9	7547	89.5	13418	85.2	6103	92.3	4195	90.3	1932	77

SEPT 1991 OFFICER MASTER FILE INVENTORY AND CONTINUATION RATES

YOS	O-1 INV	O-1 RATE	O-2 INV	O-2 RATE	O-3 INV	O-3 RATE	O-4 INV	O-4 RATE	O-5 INV	O-5 RATE	O-6 INV	O-6 RATE
0	2935	96.2	2	100	2	100	0	0	0	0	0	0
1	3085	96.5	204	95.6	1	100	1	100	0	0	0	0
2	13	84.6	3330	95.3	8	100	0	0	1	100	0	0
3	1	100	3242	85.8	59	93.2	0	0	1	100	0	0
4	0	0	248	69.4	2959	86.1	0	0	0	0	0	0
5	0	0	6	50	2845	87.3	3	100	0	0	0	0
6	0	0	1	100	2672	83.1	1	100	1	0	0	0
7	0	0	0	0	1674	82.8	2	100	1	100	0	0
8	0	0	0	0	1544	87.6	3	100	1	100	2	100
9	0	0	0	0	1413	92.8	78	97.4	1	100	0	0
10	0	0	0	0	558	53.6	842	96.9	2	100	0	0
11	0	0	0	0	43	37.2	1022	96.4	0	0	0	0
12	0	0	0	0	12	58.3	972	95.7	4	100	0	0
13	0	0	0	0	3	66.7	871	97.6	13	92.3	0	0
14	0	0	0	0	0	0	847	95.9	49	98	0	0
15	0	0	0	0	3	100	372	89.8	532	99.8	1	100
16	0	0	0	0	2	50	249	92	625	98.6	0	0
17	0	0	0	0	1	100	237	94.9	648	98.5	2	100
18	0	0	0	0	0	0	244	86.1	615	95.9	5	80
19	0	0	0	0	0	0	162	19.1	548	88.3	8	100
20	0	0	0	0	0	0	28	10.7	477	87.6	32	100
21	0	0	0	0	0	0	1	0	327	80.4	131	99.2
22	0	0	0	0	0	0	0	0	146	58.2	328	97.6
23	0	0	0	0	0	0	0	0	74	55.4	280	91.1
24	0	0	0	0	0	0	0	0	32	62.5	302	85.8
25	0	0	0	0	0	0	0	0	30	6.7	229	73.4
26	0	0	0	0	0	0	0	0	3	66.7	150	72.7
27	0	0	0	0	0	0	0	0	1	100	105	90.5
28	0	0	0	0	0	0	0	0	1	100	72	73.6
29	0	0	0	0	0	0	0	0	0	0	57	7
30	0	0	0	0	0	0	0	0	0	0	11	18.2
TOT	6089	96.3	7033	90	13804	84.8	5941	92.9	4139	91	1716	84.1

SEPT 1992 OFFICER MASTER FILE INVENTORY AND CONTINUATION RATES

YOS	O-1 INV	O-1 RATE	O-2 INV	O-2 RATE	O-3 INV	O-3 RATE	O-4 INV	O-4 RATE	O-5 INV	O-5 RATE	O-6 INV	O-6 RATE
0	2663	95.8	2	50	0	0	0	0	0	0	0	0
1	2734	96.3	151	91.4	2	100	0	0	0	0	0	0
2	43	72.1	3135	94.6	2	100	1	100	0	0	0	0
3	1	0	3182	87.3	15	86.7	1	100	1	100	0	0
4	1	100	271	67.5	2567	85.5	4	100	1	0	0	0
5	0	0	2	50	2718	88.6	1	100	0	0	0	0
6	1	0	0	0	2492	84.8	4	100	0	0	0	0
7	0	0	1	100	2221	79.2	4	75	0	0	0	0
8	0	0	0	0	1386	85.4	7	100	1	100	0	0
9	0	0	0	0	1316	89.8	46	93.5	1	0	2	100
10	0	0	0	0	558	60.2	831	96	2	100	0	0
11	0	0	0	0	86	17.4	1036	95.5	2	100	0	0
12	0	0	0	0	6	0	1003	94.2	0	0	0	0
13	0	0	0	0	5	60	931	95.4	10	100	0	0
14	0	0	0	0	2	50	828	97.1	37	97.3	0	0
15	0	0	0	0	0	0	391	91.8	470	100	0	0
16	0	0	0	0	2	100	260	92.3	606	98.3	1	100
17	0	0	0	0	0	0	228	92.1	617	97.9	1	100
18	0	0	0	0	0	0	225	82.2	642	95.5	2	100
19	0	0	0	0	0	0	210	21	580	85.3	12	91.7
20	0	0	0	0	0	0	31	3.2	470	84.3	22	90.9
21	0	0	0	0	0	0	3	0	241	75.5	210	99
22	0	0	0	0	0	0	0	0	116	56.9	277	98.2
23	0	0	0	0	0	0	0	0	84	64.3	320	88.4
24	0	0	0	0	0	0	0	0	41	46.3	253	87.7
25	0	0	0	0	0	0	0	0	20	40	258	73.3
26	0	0	0	0	0	0	0	0	2	0	162	75.9
27	0	0	0	0	0	0	0	0	2	100	103	81.6
28	0	0	0	0	0	0	0	0	1	0	91	74.7
29	0	0	0	0	0	0	0	0	1	0	51	11.8
30	0	0	0	0	0	0	0	0	0	0	6	0
TOT	5461	95.8	6746	90	13385	83.8	6058	91.4	3956	90	1774	84.2

SEPT 1993 OFFICER MASTER FILE INVENTORY

YOS	O-1 INV	O-1 RATE	O-2 INV	O-2 RATE	O-3 INV	O-3 RATE	O-4 INV	O-4 RATE	O-5 INV	O-5 RATE	O-6 INV	O-6 RATE
0	2094		1		2		0		0		0	
1	2523		48		1		0		0		0	
2	15		2761		3		1		0		0	
3	2		2978		22		0		0		0	
4	1		89		2704		0		1		0	
5	0		8		2373		2		0		0	
6	0		1		2410		3		0		0	
7	0		0		2115		8		0		0	
8	0		1		1760		5		1		0	
9	1		0		1172		22		2		0	
10	0		0		658		574		1		2	
11	0		0		82		1055		4		0	
12	0		0		4		999		4		0	
13	0		0		0		944		6		0	
14	0		0		1		877		23		0	
15	0		0		1		437		403		1	
16	0		0		0		229		602		0	
17	0		0		1		238		598		1	
18	0		0		0		209		603		2	
19	0		0		0		186		609		4	
20	0		0		0		44		483		25	
21	0		0		0		1		167		249	
22	0		0		0		0		111		279	
23	0		0		0		0		62		277	
24	0		0		0		0		54		282	
25	0		0		0		0		19		220	
26	0		0		0		0		8		185	
27	0		0		0		0		0		114	
28	0		0		0		0		2		80	
29	0		0		0		0		0		65	
30	0		0		0		0		0		6	
TOT	4667		5888		13310		5843		3766		1795	

APPENDIX C FY93 MODEL VALIDATION OUTPUT

**** URL Officer Promotion Model ****

CURRENT YEAR (1993) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	5442	N/A	96.03	216	5226	2682		
O-2	6743	N/A	89.89	682	6061	36	2.00	95.00
O-3	13900	N/A	85.02	2082	11818	24	4.00	95.00
O-4	6300	6378	91.75	520	5780	37	10.25	80.00
O-5	4022	3914	92.54	300	3722	14	15.17	70.00
O-6	1841	1830	81.58	339	1502	0	21.50	55.00

FISCAL YEAR 1993 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2663	96.01	106	2557	2657	16	0	0.00	0	0	0
1	2734	96.41	98	2636	24	17	0	0.00	0	0	0
2	43	75.00	11	32	1	18	0	0.00	0	0	0
3	1	50.00	0	1	0	19	0	0.00	0	0	0
4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	0	0.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5442	96.03	216	5226	2682

FISCAL YEAR 1993 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2	75.00	0	2	1	16	0	0.00	0	0	0
1	151	93.81	9	142	27	17	0	0.00	0	0	0
2	3135	94.96	158	2977	2	18	0	0.00	0	0	0
3	3182	86.54	428	2754	3	19	0	0.00	0	0	0
4	271	68.41	86	185	3	20	0	0.00	0	0	0
5	2	50.00	1	1	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	6743	89.89	682	6061	36

FISCAL YEAR 1993 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	100.00	0	0	2	16	0	0.00	0	0	0
1	1	100.00	0	1	1	17	0	0.00	0	0	0
2	1	100.00	0	1	1	18	0	0.00	0	0	0

3	15	86.70	2	13	1	19	0	0.00	0	0	0
4	2667	85.50	387	2280	3	20	0	0.00	0	0	0
5	2824	88.60	322	2502	1	21	0	0.00	0	0	0
6	2590	84.80	394	2196	2	22	0	0.00	0	0	0
7	2292	79.20	477	1815	2	23	0	0.00	0	0	0
8	1440	85.40	210	1230	3	24	0	0.00	0	0	0
9	1383	93.00	97	1286	3	25	0	0.00	0	0	0
10	580	80.20	115	465	3	26	0	0.00	0	0	0
11	89	24.00	68	21	1	27	0	0.00	0	0	0
12	7	38.87	4	3	1	28	0	0.00	0	0	0
13	6	62.51	2	4	0	29	0	0.00	0	0	0
14	1	50.00	0	1	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	13900	85.02	2082	11818	24

FISCAL YEAR 1993 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	278	93.00	19	259	0
1	0	100.00	0	0	0	17	247	93.75	15	232	0
2	0	100.00	0	0	0	18	230	85.00	34	196	0
3	1	100.00	0	1	0	19	211	25.00	158	53	0
4	2	100.00	0	2	1	20	40	6.76	37	3	0
5	2	100.00	0	2	2	21	2	0.00	2	0	0
6	3	100.00	0	3	2	22	0	0.00	0	0	0
7	4	83.33	1	3	2	23	0	0.00	0	0	0
8	5	100.00	0	5	5	24	0	0.00	0	0	0
9	30	95.95	1	29	7	25	0	0.00	0	0	0
10	745	97.00	22	723	7	26	0	0.00	0	0	0
11	1109	96.00	44	1065	7	27	0	0.00	0	0	0
12	1062	95.00	53	1009	1	28	0	0.00	0	0	0
13	994	96.75	32	962	1	29	0	0.00	0	0	0
14	882	95.00	44	838	1	30	0	0.00	0	0	0
15	439	90.00	44	395	1						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	6300	91.75	520	5780	37

FISCAL YEAR 1993 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	630	98.50	9	621	1
1	0	0.00	0	0	0	17	634	98.50	10	624	1
2	0	0.00	0	0	0	18	646	95.70	28	618	1
3	0	100.00	0	0	0	19	582	90.00	58	524	0
4	0	100.00	0	0	0	20	498	93.00	35	463	0
5	0	100.00	0	0	0	21	255	86.00	36	219	0
6	0	100.00	0	0	0	22	119	57.62	50	69	0
7	0	100.00	0	0	0	23	76	60.13	30	46	0
8	1	100.00	0	1	1	24	49	53.41	23	26	0
9	2	100.00	0	2	1	25	21	20.02	17	4	0
10	2	100.00	0	2	1	26	5	40.02	3	2	0
11	2	100.00	0	2	1	27	1	50.00	0	1	0
12	3	100.00	0	3	1	28	1	50.00	0	1	0
13	8	95.65	0	8	2	29	0	0.00	0	0	0
14	31	97.70	1	30	2	30	0	0.00	0	0	0
15	456	99.90	0	456	2						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	4022	92.54	300	3722	14

FISCAL YEAR 1993 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2663	96.01	106	2557	2657	0	2557	0	2581
1	2734	96.41	98	2636	24	2610	26	0	27
2	43	75.00	11	32	1	29	3	0	3
3	1	50.00	0	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0
TOT	5442	96.03	216	5226	2682	2639	2587	0	5269

FISCAL YEAR 1993 O-1 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
0	2663	95.80	112	2551	2657	0	2551	0	2575	2581
1	2734	96.30	101	2633	24	2610	26	0	27	27
2	43	72.10	12	31	1	29	3	0	3	3
3	1	0.00	1	0	0	0	0	0	0	1
4	1	100.00	0	1	0	0	1	0	1	0
TOT	5442	95.85	226	5216	2682	2639	2581	0	5263	5269

FISCAL YEAR 1993 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2	75.00	0	2	1	0	2	0	29
1	151	93.81	9	142	27	0	142	2610	2754
2	3135	94.96	158	2977	2	0	2977	29	3009
3	3182	86.54	426	2754	3	2728	26	0	29
4	271	68.41	86	185	3	183	2	0	2
5	2	50.00	1	1	0	0	1	0	1
TOT	6743	89.89	682	6061	36	3065	3150	2639	5825

FISCAL YEAR 1993 O-2 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
0	2	50.00	1	1	1	0	1	0	28	29
1	151	91.40	13	138	27	0	138	2610	2750	2754
2	3135	94.60	169	2966	2	0	2966	29	2998	3009
3	3182	87.30	404	2778	3	2728	26	0	29	29
4	271	67.50	88	183	3	183	2	0	2	2
5	2	50.00	1	1	0	0	1	0	1	1
TOT	6743	89.97	676	6067	36	3065	3134	2639	5809	5825

FISCAL YEAR 1993 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
1	1	100.00	0	1	1	0	1	0	2
2	1	100.00	0	1	1	0	1	0	2
3	15	86.70	2	13	1	0	13	2728	2744
4	2667	85.50	387	2280	3	0	2280	183	2464
5	2824	88.60	322	2502	1	0	2502	0	2504
6	2590	84.80	394	2196	2	0	2196	0	2198
7	2292	79.20	477	1815	2	0	1815	0	1818
8	1440	85.40	210	1230	3	0	1230	0	1233
9	1383	93.00	97	1286	3	772	514	0	517
10	580	80.20	115	465	3	310	155	0	156
11	89	24.00	68	21	1	12	9	0	10
12	7	39.87	4	3	1	0	3	0	3
13	6	62.51	2	4	0	0	4	0	4
14	1	50.00	0	1	0	0	1	0	1
TOT	13900	85.02	2082	11818	24	1092	10724	3065	13659

FISCAL YEAR 1993 O-3 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
1	2	100.00	0	2	1	0	2	0	3	2
2	2	100.00	0	2	1	0	2	0	3	2
3	15	86.70	2	13	1	0	13	2728	2744	2744
4	2567	85.50	372	2195	3	0	2195	183	2379	2464
5	2718	88.60	310	2408	1	0	2408	0	2410	2504
6	2492	84.80	379	2113	2	0	2113	0	2115	2198
7	2221	79.20	462	1759	2	0	1759	0	1762	1818
8	1386	85.40	202	1184	3	0	1184	0	1187	1233
9	1316	89.80	134	1182	3	772	410	0	413	517
10	558	60.20	222	336	3	310	26	0	27	156
11	86	17.40	71	15	1	12	3	0	4	10
12	6	0.00	6	0	1	0	0	0	0	3
13	5	60.00	2	3	0	0	3	0	3	4

14	2	50.00	1	1	0	0	1	0	1	1
TOT	13376	83.83	2163	11213	24	1092	10119	3065	13054	13659

FISCAL YEAR 1993 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	2
4	2	100.00	0	2	1	0	2	0	4
5	2	100.00	0	2	2	0	2	0	4
6	3	100.00	0	3	2	0	3	0	5
7	4	83.33	1	3	2	0	3	0	8
8	5	100.00	0	5	5	0	5	0	12
9	30	95.95	1	29	7	0	29	772	808
10	745	97.00	22	723	7	0	723	310	1040
11	1109	96.00	44	1065	7	0	1065	12	1078
12	1062	95.00	53	1009	1	0	1009	0	1010
13	994	96.75	32	962	1	0	962	0	963
14	882	95.00	44	838	1	410	428	0	429
15	439	90.00	44	395	1	116	279	0	279
16	278	93.00	19	259	0	6	253	0	253
17	247	93.75	15	232	0	0	232	0	232
18	230	85.00	34	196	0	0	196	0	196
19	211	25.00	158	53	0	0	53	0	53
20	40	6.76	37	3	0	0	3	0	3
21	2	0.00	2	0	0	0	0	0	0
TOT	6300	91.75	520	5780	37	531	5248	1092	6379

FISCAL YEAR 1993 O-4 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
2	1	100.00	0	1	0	0	1	0	1	0
3	1	100.00	0	1	0	0	1	0	2	2
4	4	100.00	0	4	1	0	4	0	6	4
5	1	100.00	0	1	2	0	1	0	3	4
6	4	100.00	0	4	2	0	4	0	6	5
7	4	75.00	1	3	2	0	3	0	8	8
8	7	100.00	0	7	5	0	7	0	14	12
9	46	93.50	3	43	7	0	43	772	822	808
10	831	96.00	33	798	7	0	798	310	1115	1040
11	1036	95.50	47	989	7	0	989	12	1002	1078
12	1002	94.20	58	945	1	0	945	0	946	1010
13	931	95.40	43	888	1	0	888	0	889	963
14	828	97.10	24	804	1	410	394	0	395	429
15	391	91.80	32	359	1	116	243	0	243	279
16	260	92.30	20	240	0	6	234	0	234	253
17	228	92.10	18	210	0	0	210	0	210	232
18	225	82.20	40	185	0	0	185	0	185	196
19	210	21.00	166	44	0	0	44	0	44	53
20	31	3.20	30	1	0	0	1	0	1	3
21	3	0.00	3	0	0	0	0	0	0	0
TOT	6045	91.43	518	5527	37	531	4995	1092	6126	6379

FISCAL YEAR 1993 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	1	0	1	0	2
9	2	100.00	0	2	1	0	2	0	3
10	2	100.00	0	2	1	0	2	0	3
11	2	100.00	0	2	1	0	2	0	3
12	3	100.00	0	3	1	0	3	0	5
13	8	95.65	0	8	2	0	8	0	10
14	31	97.70	1	30	2	0	30	410	442
15	456	99.90	0	456	2	0	456	116	573
16	630	98.50	9	621	1	0	621	6	628
17	634	98.50	10	624	1	0	624	0	625
18	646	95.70	28	618	1	0	618	0	618
19	582	90.00	58	524	0	41	483	0	483
20	498	93.00	35	463	0	227	236	0	236
21	255	86.00	36	219	0	83	136	0	136

22	119	57.62	50	69	0	4	65	0	65
23	76	60.13	30	46	0	0	46	0	46
24	49	53.40	23	26	0	0	26	0	26
25	21	20.02	17	4	0	0	4	0	4
26	5	40.02	3	2	0	0	2	0	2
27	1	50.00	0	1	0	0	1	0	1
28	1	50.00	0	1	0	0	1	0	1
TOT	4022	92.54	300	3722	14	353	3367	531	3913

FISCAL YEAR 1993 O-5 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
3	1	100.00	0	1	0	0	1	0	1	0
4	1	0.00	1	0	0	0	0	0	0	0
8	1	100.00	0	1	1	0	1	0	2	2
9	1	0.00	1	0	1	0	0	0	1	3
10	2	100.00	0	2	1	0	2	0	3	3
11	2	100.00	0	2	1	0	2	0	3	3
13	10	100.00	0	10	2	0	10	0	12	10
14	37	97.30	1	36	2	0	36	410	448	442
15	470	100.00	0	470	2	0	470	116	587	573
16	606	98.30	10	596	1	0	596	6	603	628
17	617	97.90	13	604	1	0	604	0	605	625
18	642	95.50	29	613	1	0	613	0	617	618
19	580	85.30	85	495	0	41	454	0	454	483
20	470	84.30	74	396	0	227	169	0	169	236
21	241	75.50	59	182	0	83	99	0	99	136
22	116	56.90	50	66	0	4	62	0	62	65
23	84	64.30	30	54	0	0	54	0	54	46
24	41	46.30	22	19	0	0	19	0	19	20
25	20	40.00	12	8	0	0	8	0	8	4
26	2	0.00	2	0	0	0	0	0	0	2
27	2	100.00	0	2	0	0	2	0	2	1
28	1	0.00	1	0	0	0	0	0	0	1
29	1	0.00	1	0	0	0	0	0	0	0
TOT	3948	90.10	391	3557	14	353	3202	531	3748	3913

**** URL Officer Promotion Model ****

CURRENT YEAR (1994) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	5269	N/A	96.05	208	5061	2094		
O-2	5825	N/A	90.44	557	5268	29	2.00	95.00
O-3	13500	N/A	85.04	2020	11480	17	4.00	95.00
O-4	6378	6081	91.63	534	5844	14	10.21	80.00
O-5	3914	3832	90.62	367	3547	7	15.15	70.00
O-6	1830	1816	81.58	337	1493	0	20.90	55.00

APPENDIX C1 FY94 MODEL VALIDATION OUTPUT

**** URL Officer Promotion Model ****

CURRENT YEAR (1994) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	4636	N/A	96.07	182	4454	2094		
O-2	5895	N/A	90.21	577	5318	29	2.00	95.00
O-3	13308	N/A	84.93	2024	11284	17	4.00	95.00
O-4	6060	5905	92.05	520	5540	14	10.50	70.00
O-5	3847	3768	90.56	261	3586	7	15.17	65.00
O-6	1754	1731	85.50	254	1500	4	21.00	55.00

FISCAL YEAR 1994 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2094	96.00	84	2010	2074	16	0	0.00	0	0	0
1	2523	96.40	91	2432	19	17	0	0.00	0	0	0
2	15	75.00	4	11	1	18	0	0.00	0	0	0
3	2	50.00	1	1	0	19	0	0.00	0	0	0
4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	1	0.00	1	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	4636	96.07	182	4454	2094

FISCAL YEAR 1994 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	100.00	0	1	1	16	0	0.00	0	0	0
1	48	93.80	3	45	21	17	0	0.00	0	0	0
2	2761	94.90	139	2622	2	18	0	0.00	0	0	0
3	2987	86.50	402	2585	3	19	0	0.00	0	0	0
4	89	50.00	28	61	2	20	0	0.00	0	0	0
5	8	0.00	4	4	0	21	0	0.00	0	0	0
6	1	0.00	1	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5895	90.21	577	5318	29

FISCAL YEAR 1994 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2	100.00	0	2	2	16	0	0.00	0	0	0
1	1	100.00	0	1	0	17	0	0.00	0	0	0
2	3	100.00	0	3	1	18	0	0.00	0	0	0

3	22	91.90	3	19	0	19	0	0.00	0	0	0
4	2704	85.80	392	2312	2	20	0	0.00	0	0	0
5	2373	87.90	271	2102	1	21	0	0.00	0	0	0
6	2342	83.50	386	1956	2	22	0	0.00	0	0	0
7	2115	80.70	440	1675	2	23	0	0.00	0	0	0
8	1660	86.60	222	1438	2	24	0	0.00	0	0	0
9	1340	91.40	115	1225	2	25	0	0.00	0	0	0
10	658	65.00	130	528	2	26	0	0.00	0	0	0
11	82	24.00	62	20	1	27	0	0.00	0	0	0
12	4	0.00	2	2	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	1	0.00	0	1	0	30	0	0.00	0	0	0
15	1	0.00	1	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	13308	84.93	2024	11284	17

FISCAL YEAR 1994 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	213	91.50	18	195	0
1	0	100.00	0	0	0	17	205	92.50	15	190	0
2	0	100.00	0	0	0	18	213	83.50	35	178	0
3	1	100.00	0	1	0	19	184	15.00	156	28	0
4	2	100.00	0	2	0	20	32	5.00	30	2	0
5	2	100.00	0	2	1	21	2	0.00	2	0	0
6	3	100.00	0	3	1	22	0	0.00	0	0	0
7	5	83.33	1	4	1	23	0	0.00	0	0	0
8	7	100.00	0	7	2	24	0	0.00	0	0	0
9	28	95.95	1	27	3	25	0	0.00	0	0	0
10	616	96.45	22	594	3	26	0	0.00	0	0	0
11	1132	95.95	46	1086	3	27	0	0.00	0	0	0
12	1146	94.94	58	1088	0	28	0	0.00	0	0	0
13	964	96.46	34	930	0	29	0	0.00	0	0	0
14	885	94.00	53	832	0	30	0	0.00	0	0	0
15	426	87.00	55	371	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	6060	92.05	520	5540	14

FISCAL YEAR 1994 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	603	98.45	9	594	1
1	0	0.00	0	0	0	17	606	98.21	11	595	1
2	0	0.00	0	0	0	18	616	95.70	26	590	1
3	0	100.00	0	0	0	19	557	95.00	28	529	0
4	0	100.00	0	0	0	20	478	95.00	24	454	0
5	0	100.00	0	0	0	21	244	85.00	37	207	0
6	0	100.00	0	0	0	22	113	55.00	51	62	0
7	0	100.00	0	0	0	23	73	55.00	33	40	0
8	1	100.00	0	1	0	24	47	50.00	23	24	0
9	2	100.00	0	2	0	25	20	40.00	12	8	0
10	2	100.00	0	2	0	26	5	20.00	4	1	0
11	2	100.00	0	2	0	27	1	50.00	0	1	0
12	3	100.00	0	3	1	28	1	50.00	0	1	0
13	8	95.65	0	8	1	29	0	0.00	0	0	0
14	30	97.70	1	29	1	30	0	0.00	0	0	0
15	436	99.25	3	433	1						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3847	90.56	261	3586	7

FISCAL YEAR 1994 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2094	96.00	84	2010	2074	0	2010	0	2029
1	2523	96.40	91	2432	19	2408	24	0	25
2	15	75.00	4	11	1	10	1	0	1
3	2	50.00	1	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0
5	1	0.00	1	0	0	0	0	0	0

TOT	4636	96.07	182	4454	2094	2418	2036	0	4130	

FISCAL YEAR 1994 O-1 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
0	2094	96.00	84	2010	2074	0	2010	0	2029	2029
1	2523	96.40	91	2432	19	2408	24	0	25	25
2	15	75.00	4	11	1	10	1	0	1	1
3	2	50.00	1	1	0	0	1	0	1	1
4	1	0.00	1	0	0	0	0	0	0	0
5	1	0.00	1	0	0	0	0	0	0	0
TOT	4636	96.07	182	4454	2094	2418	2036	0	4130	4130

FISCAL YEAR 1994 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	100.00	0	1	1	0	1	0	22
1	48	93.80	3	45	21	0	45	2408	2455
2	2761	94.90	139	2622	2	0	2622	10	2635
3	2987	86.50	402	2585	3	2561	24	0	26
4	89	50.00	28	61	2	60	1	0	1
5	8	0.00	4	4	0	0	4	0	4
6	1	0.00	1	0	0	0	0	0	0
TOT	5895	90.21	577	5318	29	2759	2697	2416	5144

FISCAL YEAR 1994 O-2 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
0	1	100.00	0	1	1	0	1	0	22	22
1	48	93.80	3	45	21	0	45	2408	2455	2455
2	2761	94.90	141	2620	2	0	2620	10	2633	2635
3	2987	86.50	403	2584	3	2561	24	0	26	26
4	89	50.00	45	45	2	60	1	0	1	1
5	8	0.00	8	0	0	0	0	0	0	4
6	1	0.00	1	0	0	0	0	0	0	0
TOT	5895	89.82	601	5295	29	2759	2691	2418	5138	5144

FISCAL YEAR 1994 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2	100.00	0	2	2	0	2	0	2
1	1	100.00	0	1	0	0	1	0	2
2	3	100.00	0	3	1	0	3	0	3
3	22	91.90	3	19	0	0	19	2561	2582
4	2704	85.80	392	2312	2	0	2312	60	2373
5	2373	87.90	271	2102	1	0	2102	0	2104
6	2342	83.50	386	1956	2	0	1956	0	1958
7	2115	80.70	440	1675	2	0	1675	0	1677
8	1660	86.60	222	1438	2	0	1438	0	1440
9	1340	91.40	115	1225	2	500	725	0	727
10	658	65.00	130	528	2	270	258	0	259
11	82	24.00	62	20	1	8	12	0	12
12	4	0.00	2	2	0	0	2	0	2
14	1	0.00	0	1	0	0	1	0	1
15	1	0.00	1	0	0	0	0	0	0
TOT	13308	84.93	2024	11284	17	777	10506	2759	13144	

FISCAL YEAR 1994 O-3 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
0	2	100.00	0	2	2	0	2	0	2	2
1	1	100.00	0	1	0	0	1	0	2	2
2	3	100.00	0	3	1	0	3	0	3	3
3	22	91.90	2	20	0	0	20	2561	2583	2582
4	2704	85.80	384	2320	2	0	2320	60	2381	2373
5	2373	87.90	287	2086	1	0	2086	0	2088	2104

6	2410	83.50	398	2012	2	0	2012	0	2014	1958
7	2115	80.70	408	1707	2	0	1707	0	1709	1677
8	1760	86.60	236	1524	2	0	1524	0	1526	1440
9	1172	91.40	101	1071	2	500	571	0	573	727
10	658	65.00	230	428	2	270	158	0	159	259
11	82	24.00	62	20	1	8	12	0	12	12
12	4	0.00	4	0	0	0	0	0	0	2
14	1	0.00	1	0	0	0	0	0	0	1
15	1	0.00	1	0	0	0	0	0	0	0
TOT	13308	84.11	2114	11194	17	777	10416	2759	13054	13144

FISCAL YEAR 1994 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	1
4	2	100.00	0	2	0	0	2	0	3
5	2	100.00	0	2	1	0	2	0	3
6	3	100.00	0	3	1	0	3	0	4
7	5	83.33	1	4	1	0	4	0	6
8	7	100.00	0	7	2	0	7	0	10
9	28	95.95	1	27	3	0	27	500	530
10	616	96.45	22	594	3	0	594	270	867
11	1132	95.95	46	1086	3	0	1086	8	1094
12	1146	94.94	58	1088	0	0	1088	0	1088
13	964	96.46	34	930	0	0	930	0	930
14	885	94.00	53	832	0	254	578	0	578
15	426	87.00	55	371	0	100	271	0	271
16	213	91.50	18	195	0	4	191	0	191
17	205	92.50	15	190	0	0	190	0	190
18	213	83.50	35	178	0	0	178	0	178
19	184	15.00	156	28	0	0	28	0	28
20	32	5.00	30	2	0	0	2	0	2
21	2	0.00	2	0	0	0	0	0	0
TOT	6060	92.05	520	5540	14	356	5182	777	5974

FISCAL YEAR 1994 O-4 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
2	1	100.00	0	1	0	0	1	0	1	0
5	2	100.00	0	2	1	0	2	0	3	3
6	3	100.00	0	3	1	0	3	0	4	4
7	8	100.00	0	8	1	0	8	0	10	6
8	5	100.00	0	5	2	0	5	0	8	10
9	22	95.90	1	21	3	0	21	500	524	530
10	574	96.40	21	553	3	0	553	270	826	867
11	1055	95.90	43	1012	3	0	1012	8	1020	1094
12	999	94.90	51	948	0	0	948	0	948	1088
13	944	96.50	33	911	0	0	911	0	911	930
14	877	96.50	31	846	0	254	592	0	592	578
15	437	90.80	40	397	0	100	297	0	297	271
16	229	79.10	48	181	0	4	177	0	177	191
17	238	80.70	46	192	0	0	192	0	192	190
18	209	68.90	65	144	0	0	144	0	144	178
19	186	9.70	168	18	0	0	18	0	18	28
20	44	6.80	41	3	0	0	3	0	3	2
21	1	0.00	1	0	0	0	0	0	0	0
TOT	5834	89.90	589	5245	14	356	4887	777	5679	5974

FISCAL YEAR 1994 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	0	0	1	0	1
9	2	100.00	0	2	0	0	2	0	2
10	2	100.00	0	2	0	0	2	0	2
11	2	100.00	0	2	0	0	2	0	3
12	3	100.00	0	3	1	0	3	0	4
13	8	95.65	0	8	1	0	8	0	9
14	30	97.70	1	29	1	0	29	254	284

15	436	99.25	3	433	1	0	433	100	534
16	603	98.45	9	594	1	0	594	4	599
17	606	98.21	11	595	1	0	595	0	596
18	616	95.70	26	590	1	0	590	0	590
19	557	95.00	28	529	0	13	516	0	516
20	478	95.00	24	454	0	237	217	0	217
21	244	85.00	37	207	0	3	204	0	204
22	113	55.00	51	62	0	0	62	0	62
23	73	55.00	33	40	0	0	40	0	40
24	47	50.00	23	24	0	0	24	0	24
25	20	40.00	12	8	0	0	8	0	8
26	5	20.00	4	1	0	0	1	0	1
27	1	50.00	0	1	0	0	1	0	1
28	1	50.00	0	1	0	0	1	0	1
TOT	3847	90.56	261	3586	7	252	3333	356	3698

FISCAL YEAR 1994 O-5 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
4	1	100.00	0	1	0	0	1	0	1	0
8	1	100.00	0	1	0	0	1	0	1	1
9	2	100.00	0	2	0	0	2	0	2	2
10	1	100.00	0	1	0	0	1	0	1	2
11	4	100.00	0	4	0	0	4	0	5	3
12	4	100.00	0	4	1	0	4	0	5	4
13	6	95.60	0	6	1	0	6	0	7	9
14	23	97.70	1	22	1	0	22	254	277	284
15	403	99.90	0	403	1	0	403	100	504	534
16	602	96.80	19	583	1	0	583	4	588	599
17	598	96.50	21	577	1	0	577	0	578	596
18	603	94.10	36	567	1	0	567	0	567	590
19	609	86.80	80	529	0	13	516	0	516	516
20	483	86.00	68	415	0	237	178	0	178	217
21	167	66.50	56	111	0	3	108	0	108	204
22	111	48.50	57	54	0	0	54	0	54	62
23	62	43.30	35	27	0	0	27	0	27	40
24	54	35.20	35	19	0	0	19	0	19	24
25	19	20.00	15	4	0	0	4	0	4	8
26	8	20.00	6	2	0	0	2	0	2	1
28	2	50.00	1	1	0	0	1	0	1	1
29	1	0.00	1	0	0	0	0	0	0	0
TOT	3764	88.55	431	3333	7	252	3080	356	3445	3698

**** URL Officer Promotion Model ****

CURRENT YEAR (1995) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	4130	N/A	96.05	163	3967	2094		
O-2	5144	N/A	90.44	492	4652	29	2.00	95.00
O-3	13144	N/A	84.27	2068	11076	17	4.00	95.00
O-4	5736	5634	92.03	457	5279	14	10.39	70.00
O-5	3653	3599	90.53	346	3307	7	15.48	70.00
O-6	1710	1698	84.10	272	1438	0	21.19	55.00

APPENDIX D IMPLEMENTATION RUN I OUTPUT

MODEL IMPLEMENTATION RUN FY95-FY99
CONSERVATIVE CONTINUATION RATES

**** URL Officer Promotion Model ****

CURRENT YEAR (1995) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	3999	N/A	96.05	158	3841	2094		
O-2	5142	N/A	90.43	492	4650	29	2.00	95.00
O-3	13052	N/A	84.45	2030	11022	17	4.00	95.00
O-4	5736	5634	92.03	466	5270	14	10.25	70.00
O-5	3653	3599	90.53	346	3307	7	15.33	70.00
O-6	1710	1698	87.19	219	1491	4	21.25	55.00

FISCAL YEAR 1995 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1945	96.00	78	1867	2074	16	0	0.00	0	0	0
1	2027	96.40	73	1954	19	17	0	0.00	0	0	0
2	25	75.00	6	19	1	18	0	0.00	0	0	0
3	1	50.00	0	1	0	19	0	0.00	0	0	0
4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	0	0.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3999	96.05	158	3841	2094

FISCAL YEAR 1995 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	100.00	0	1	1	16	0	0.00	0	0	0
1	21	93.80	1	20	21	17	0	0.00	0	0	0
2	2455	94.90	124	2331	2	18	0	0.00	0	0	0
3	2634	86.50	355	2279	3	19	0	0.00	0	0	0
4	26	50.00	8	18	2	20	0	0.00	0	0	0
5	1	0.00	0	1	0	21	0	0.00	0	0	0
6	4	0.00	4	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5142	90.43	492	4650	29

FISCAL YEAR 1995 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	100.00	0	1	2	16	0	0.00	0	0	0
1	2	100.00	0	2	0	17	0	0.00	0	0	0
2	2	100.00	0	2	1	18	0	0.00	0	0	0
3	3	91.90	0	3	0	19	0	0.00	0	0	0

4	2583	85.80	375	2208	2	20	0	0.00	0	0	0
5	2381	87.90	271	2110	1	21	0	0.00	0	0	0
6	2088	83.50	317	1771	2	22	0	0.00	0	0	0
7	2014	80.70	419	1595	2	23	0	0.00	0	0	0
8	1709	86.60	250	1459	2	24	0	0.00	0	0	0
9	1526	91.40	107	1419	2	25	0	0.00	0	0	0
10	483	65.00	96	387	2	26	0	0.00	0	0	0
11	248	24.00	188	60	1	27	0	0.00	0	0	0
12	12	0.00	7	5	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	13052	84.45	2030	11022	17

FISCAL YEAR 1995 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	202	91.50	17	185	0
1	0	100.00	0	0	0	17	194	92.50	15	179	0
2	0	100.00	0	0	0	18	201	83.50	33	168	0
3	1	100.00	0	1	0	19	174	15.00	148	26	0
4	2	100.00	0	2	0	20	30	5.00	28	2	0
5	2	100.00	0	2	1	21	2	0.00	2	0	0
6	3	100.00	0	3	1	22	0	0.00	0	0	0
7	5	83.33	1	4	1	23	0	0.00	0	0	0
8	7	100.00	0	7	2	24	0	0.00	0	0	0
9	27	95.95	1	26	3	25	0	0.00	0	0	0
10	583	96.45	21	562	3	26	0	0.00	0	0	0
11	874	95.95	35	839	3	27	0	0.00	0	0	0
12	1000	94.94	51	949	0	28	0	0.00	0	0	0
13	912	96.46	32	880	0	29	0	0.00	0	0	0
14	922	96.49	32	890	0	30	0	0.00	0	0	0
15	600	90.82	55	545	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5736	92.03	466	5270	14

FISCAL YEAR 1995 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	572	98.45	9	563	1
1	0	0.00	0	0	0	17	576	98.21	10	566	1
2	0	0.00	0	0	0	18	584	95.70	25	559	1
3	0	100.00	0	0	0	19	529	86.50	71	458	0
4	0	100.00	0	0	0	20	454	86.00	64	390	0
5	0	100.00	0	0	0	21	232	80.00	46	186	0
6	0	100.00	0	0	0	22	108	55.00	49	59	0
7	0	100.00	0	0	0	23	69	55.00	31	38	0
8	1	100.00	0	1	0	24	45	50.00	22	23	0
9	1	100.00	0	1	0	25	19	40.00	11	8	0
10	1	100.00	0	1	0	26	5	20.00	4	1	0
11	2	100.00	0	2	0	27	1	50.00	0	1	0
12	3	100.00	0	3	1	28	1	50.00	0	1	0
13	8	95.65	0	8	1	29	0	0.00	0	0	0
14	28	97.70	1	27	1	30	0	0.00	0	0	0
15	414	99.25	3	411	1						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3653	90.53	346	3307	7

FISCAL YEAR 1995 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1945	96.00	78	1867	2074	0	1867	0	1886
1	2027	96.40	73	1954	19	1935	19	0	20
2	25	75.00	6	19	1	17	2	0	2
3	1	50.00	0	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0
TOT	3999	96.05	158	3841	2094	1952	1889	0	3983

FISCAL YEAR 1995 O-1 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
0	1945	96.00	78	1867	2074	0	1867	0	1886	1886
1	2027	96.40	73	1954	19	1935	19	0	20	20
2	25	75.00	6	19	1	17	2	0	2	2
3	1	50.00	1	1	0	0	1	0	1	1
4	1	0.00	1	0	0	0	0	0	0	0
TOT	3999	96.05	159	3841	2094	1952	1889	0	3983	3983

FISCAL YEAR 1995 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	100.00	0	1	1	0	1	0	22
1	21	93.80	1	20	21	0	20	1935	1957
2	2455	94.90	124	2331	2	0	2331	17	2351
3	2634	86.50	355	2279	3	2258	21	0	23
4	26	50.00	8	18	2	18	0	0	0
5	1	0.00	0	1	0	0	1	0	1
6	4	0.00	4	0	0	0	0	0	0
TOT	5142	90.43	492	4650	29	2396	2374	1952	4355

FISCAL YEAR 1995 O-2 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
0	1	100.00	0	1	1	0	1	0	22	22
1	21	93.80	1	20	21	0	20	1935	1957	1957
2	2455	94.90	125	2330	2	0	2330	17	2350	2351
3	2634	86.50	356	2278	3	2258	21	0	23	23
4	26	50.00	13	13	2	18	0	0	0	0
5	1	0.00	1	0	0	0	0	0	0	1
6	4	0.00	4	0	0	0	0	0	0	0
TOT	5142	90.28	500	4642	29	2396	2372	1952	4353	4355

FISCAL YEAR 1995 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	100.00	0	1	2	0	1	0	1
1	2	100.00	0	2	0	0	2	0	3
2	2	100.00	0	2	1	0	2	0	2
3	3	91.90	0	3	0	0	3	2258	2263
4	2583	85.80	375	2208	2	0	2208	18	2227
5	2381	87.90	271	2110	1	0	2110	0	2112
6	2088	83.50	317	1771	2	0	1771	0	1773
7	2014	80.70	419	1595	2	0	1595	0	1597
8	1709	86.60	250	1459	2	90	1369	0	1371
9	1526	91.40	107	1419	2	925	494	0	496
10	483	65.00	96	387	2	173	214	0	215
11	248	24.00	188	60	1	13	47	0	47
12	12	0.00	7	5	0	0	5	0	5
TOT	13052	84.45	2030	11022	17	1198	9821	2396	12114

FISCAL YEAR 1995 O-3 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
0	1	100.00	0	1	2	0	1	0	1	1
1	2	100.00	0	2	0	0	2	0	3	3
2	2	100.00	0	2	1	0	2	0	2	2
3	3	91.90	0	3	0	0	3	2258	2263	2263
4	2583	85.80	367	2216	2	0	2216	18	2235	2227
5	2381	87.90	288	2093	1	0	2093	0	2095	2112
6	2088	83.50	345	1743	2	0	1743	0	1745	1773
7	2014	80.70	389	1625	2	0	1625	0	1627	1597
8	1709	86.60	229	1480	2	90	1390	0	1392	1371
9	1526	91.40	131	1395	2	925	470	0	472	496
10	483	65.00	169	314	2	173	141	0	142	215
11	248	24.00	188	60	1	13	47	0	47	47
12	12	0.00	12	0	0	0	0	0	0	5
TOT	13052	83.77	2118	10934	17	1198	9733	2396	12026	12114

FISCAL YEAR 1995 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	1
4	2	100.00	0	2	0	0	2	0	3
5	2	100.00	0	2	1	0	2	0	3
6	3	100.00	0	3	1	0	3	0	4
7	5	83.33	1	4	1	0	4	0	6
8	7	100.00	0	7	2	0	7	90	100
9	27	95.95	1	26	3	0	26	925	954
10	583	96.45	21	562	3	0	562	173	738
11	874	95.95	35	839	3	0	839	13	852
12	1000	94.94	51	949	0	0	949	0	949
13	912	96.46	32	880	0	0	880	0	880
14	922	96.49	32	890	0	539	351	0	351
15	600	90.82	55	545	0	203	342	0	342
16	202	91.50	17	185	0	8	177	0	177
17	194	92.50	15	179	0	0	179	0	179
18	201	83.50	33	168	0	0	168	0	168
19	174	15.00	148	26	0	0	26	0	26
20	30	5.00	28	2	0	0	2	0	2
21	2	0.00	2	0	0	0	0	0	0
TOT	5736	92.03	466	5270	14	748	4520	1198	5735

FISCAL YEAR 1995 O-4 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
2	1	100.00	0	1	0	0	1	0	1	0
3	1	100.00	0	1	0	0	1	0	1	1
5	1	100.00	0	1	1	0	1	0	2	3
6	3	100.00	0	3	1	0	3	0	4	4
7	4	100.00	0	4	1	0	4	0	6	6
8	10	100.00	0	10	2	0	10	90	103	100
9	17	95.90	1	16	3	0	16	925	944	954
10	614	96.40	22	592	3	0	592	173	768	738
11	737	95.90	30	707	3	0	707	13	720	852
12	1020	94.90	52	968	0	0	968	0	968	949
13	948	96.50	33	915	0	0	915	0	915	880
14	911	96.50	32	879	0	539	340	0	340	351
15	592	90.80	54	538	0	203	335	0	335	342
16	297	92.20	23	274	0	8	266	0	266	177
17	177	93.10	12	165	0	0	165	0	165	179
18	192	84.20	30	162	0	0	162	0	162	168
19	144	15.10	122	22	0	0	22	0	22	26
20	18	6.80	17	1	0	0	1	0	1	2
21	3	0.00	3	0	0	0	0	0	0	0
TOT	5690	92.43	431	5259	14	748	4509	1199	5724	5735

FISCAL YEAR 1995 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	0	0	1	0	1
9	1	100.00	0	1	0	0	1	0	1
10	1	100.00	0	1	0	0	1	0	1
11	2	100.00	0	2	0	0	2	0	3
12	3	100.00	0	3	1	0	3	0	4
13	8	95.65	0	8	1	0	8	0	9
14	28	97.70	1	27	1	0	27	539	567
15	414	99.25	3	411	1	0	411	203	615
16	572	98.45	9	563	1	0	563	8	572
17	576	98.21	10	566	1	0	566	0	567
18	584	95.70	25	559	1	0	559	0	559
19	529	86.50	71	458	0	0	458	0	458
20	454	86.00	64	390	0	157	233	0	233
21	232	80.00	46	186	0	70	116	0	116
22	108	55.00	49	59	0	3	56	0	56
23	69	55.00	31	38	0	0	38	0	38
24	45	50.00	22	23	0	0	23	0	23
25	19	40.00	11	8	0	0	8	0	8
26	5	20.00	4	1	0	0	1	0	1
27	1	50.00	0	1	0	0	1	0	1
28	1	50.00	0	1	0	0	1	0	1
TOT	3653	90.53	346	3307	7	228	3077	748	3834

FISCAL YEAR 1995 O-5 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
5	1	100.00	0	1	0	0	1	0	1	0
8	1	100.00	0	1	0	0	1	0	1	1
9	2	100.00	0	2	0	0	2	0	2	1
10	1	100.00	0	1	0	0	1	0	1	1
11	5	100.00	0	5	0	0	5	0	6	3
12	5	100.00	0	5	1	0	5	0	6	4
13	5	95.60	0	5	1	0	5	0	6	9
14	7	97.70	0	7	1	0	7	539	547	567
15	277	99.90	0	277	1	0	277	203	481	615
16	504	98.50	8	496	1	0	496	8	505	572
17	588	98.20	11	577	1	0	577	0	578	567
18	577	95.70	25	552	1	0	552	0	552	559
19	567	86.80	75	492	0	0	492	0	492	458
20	516	86.00	72	444	0	157	287	0	287	233
21	178	78.30	39	139	0	70	69	0	69	116
22	108	57.60	46	62	0	3	59	0	59	56
23	54	60.10	22	32	0	0	32	0	32	38
24	27	53.40	13	14	0	0	14	0	14	23
25	19	50.00	10	10	0	0	10	0	10	8
26	4	50.00	2	2	0	0	2	0	2	1
27	2	50.00	1	1	0	0	1	0	1	1
29	1	0.00	1	0	0	0	0	0	0	0
TOT	3449	90.61	325	3125	7	228	2895	748	3652	3834

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CURRENT YEAR (1996) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	3983	N/A	96.03	158	3825	2094		
O-2	4355	N/A	90.26	424	3931	29	2.00	95.00
O-3	12114	N/A	84.37	1893	10221	17	4.00	95.00
O-4	5602	5431	92.02	447	5155	14	10.15	70.00
O-5	3653	3555	90.53	346	3307	7	15.04	70.00
O-6	1693	1661	84.10	269	1424	6	21.44	50.00

FISCAL YEAR 1996 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2074	96.01	83	1991	2074	16	0	0.00	0	0	0
1	1886	96.41	68	1818	19	17	0	0.00	0	0	0
2	20	75.00	5	15	1	18	0	0.00	0	0	0
3	2	50.00	1	1	0	19	0	0.00	0	0	0
4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	0	0.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3983	96.03	158	3825	2094

FISCAL YEAR 1996 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	75.00	0	1	1	16	0	0.00	0	0	0
1	22	93.81	1	21	21	17	0	0.00	0	0	0
2	1957	94.96	99	1858	2	18	0	0.00	0	0	0
3	2351	86.54	316	2035	3	19	0	0.00	0	0	0
4	23	68.41	7	16	2	20	0	0.00	0	0	0
5	0	50.00	0	0	0	21	0	0.00	0	0	0
6	1	0.00	1	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0

8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	4355	90.26	424	3931	29

FISCAL YEAR 1996 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2	100.00	0	2	2	16	0	0.00	0	0	0
1	1	100.00	0	1	0	17	0	0.00	0	0	0
2	3	100.00	0	3	1	18	0	0.00	0	0	0
3	2	86.70	0	2	0	19	0	0.00	0	0	0
4	2263	85.50	328	1935	2	20	0	0.00	0	0	0
5	2227	88.60	254	1973	1	21	0	0.00	0	0	0
6	2112	84.80	321	1791	2	22	0	0.00	0	0	0
7	1773	79.20	369	1404	2	23	0	0.00	0	0	0
8	1597	85.40	233	1364	2	24	0	0.00	0	0	0
9	1371	93.00	96	1275	2	25	0	0.00	0	0	0
10	496	80.20	98	398	2	26	0	0.00	0	0	0
11	215	24.00	163	52	1	27	0	0.00	0	0	0
12	47	38.87	29	18	0	28	0	0.00	0	0	0
13	5	62.51	2	3	0	29	0	0.00	0	0	0
14	0	50.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	12114	84.37	1893	10221	17

FISCAL YEAR 1996 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	197	91.50	17	180	0
1	0	100.00	0	0	0	17	190	92.50	14	176	0
2	0	100.00	0	0	0	18	197	83.50	33	164	0
3	1	100.00	0	1	0	19	170	15.00	144	26	0
4	2	100.00	0	2	0	20	29	5.00	28	1	0
5	2	100.00	0	2	1	21	2	0.00	2	0	0
6	3	100.00	0	3	1	22	0	0.00	0	0	0
7	5	83.33	1	4	1	23	0	0.00	0	0	0
8	7	100.00	0	7	2	24	0	0.00	0	0	0
9	26	95.95	1	25	3	25	0	0.00	0	0	0
10	569	96.45	20	549	3	26	0	0.00	0	0	0
11	1046	95.95	42	1004	3	27	0	0.00	0	0	0
12	1059	94.94	54	1005	0	28	0	0.00	0	0	0
13	891	96.46	32	859	0	29	0	0.00	0	0	0
14	818	96.49	29	789	0	30	0	0.00	0	0	0
15	394	90.82	36	358	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5602	92.02	447	5155	14

FISCAL YEAR 1996 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	572	98.45	9	563	1
1	0	0.00	0	0	0	17	576	98.21	10	566	1
2	0	0.00	0	0	0	18	584	95.70	25	559	1
3	0	100.00	0	0	0	19	529	86.50	71	458	0
4	0	100.00	0	0	0	20	454	86.00	64	390	0
5	0	100.00	0	0	0	21	232	80.00	46	186	0
6	0	100.00	0	0	0	22	108	55.00	49	59	0
7	0	100.00	0	0	0	23	69	55.00	31	38	0
8	1	100.00	0	1	0	24	45	50.00	22	23	0
9	1	100.00	0	1	0	25	19	40.00	11	8	0
10	1	100.00	0	1	0	26	5	20.00	4	1	0
11	2	100.00	0	2	0	27	1	50.00	0	1	0
12	3	100.00	0	3	1	28	1	50.00	0	1	0
13	8	95.65	0	8	1	29	0	0.00	0	0	0
14	28	97.70	1	27	1	30	0	0.00	0	0	0

15	414	99.25	3	411	1

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3653	90.53	346	3307	7

FISCAL YEAR 1996 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2074	96.01	83	1991	2074	0	1991	0	2010
1	1886	96.41	68	1818	19	1800	18	0	19
2	20	75.00	5	15	1	13	2	0	2
3	2	50.00	1	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0
TOT	3983	96.03	158	3825	2094	1813	2012	0	4106

FISCAL YEAR 1996 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	75.00	0	1	1	0	1	0	22
1	22	93.81	1	21	21	0	21	1800	1823
2	1957	94.96	99	1858	2	0	1858	13	1874
3	2351	86.54	316	2035	3	2016	19	0	21
4	23	68.41	7	16	2	15	1	0	1
6	1	0.00	1	0	0	0	0	0	0
TOT	4355	90.26	424	3931	29	2138	1900	1813	3742

FISCAL YEAR 1996 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2	100.00	0	2	2	0	2	0	2
1	1	100.00	0	1	0	0	1	0	2
2	3	100.00	0	3	1	0	3	0	3
3	2	86.70	0	2	0	0	2	2016	2020
4	2263	85.50	328	1935	2	0	1935	15	1951
5	2227	88.60	254	1973	1	0	1973	0	1975
6	2112	84.80	321	1791	2	0	1791	0	1793
7	1773	79.20	369	1404	2	0	1404	0	1406
8	1597	85.40	233	1364	2	0	1364	0	1366
9	1371	93.00	96	1275	2	599	676	0	678
10	496	80.20	98	398	2	159	239	0	240
11	215	24.00	163	52	1	8	44	0	44
12	47	38.87	29	18	0	0	18	0	18
13	5	62.51	2	3	0	0	3	0	3
TOT	12114	84.37	1893	10221	17	765	9455	2138	11503

FISCAL YEAR 1996 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	1
4	2	100.00	0	2	0	0	2	0	3
5	2	100.00	0	2	1	0	2	0	3
6	3	100.00	0	3	1	0	3	0	4
7	5	83.33	1	4	1	0	4	0	6
8	7	100.00	0	7	2	0	7	0	10
9	26	95.95	1	25	3	0	25	599	627
10	569	96.45	20	549	3	0	549	159	711
11	1046	95.95	42	1004	3	0	1004	8	1012
12	1059	94.94	54	1005	0	0	1005	0	1005
13	891	96.46	32	859	0	0	859	0	859
14	818	96.49	29	789	0	415	374	0	374
15	394	90.82	36	358	0	84	274	0	274
16	197	91.50	17	180	0	5	175	0	175
17	190	92.50	14	176	0	0	176	0	176
18	197	83.50	33	164	0	0	164	0	164
19	170	15.00	144	26	0	0	26	0	26
20	29	5.00	28	1	0	0	1	0	1
21	2	0.00	2	0	0	0	0	0	0
TOT	5602	92.02	447	5155	14	503	4651	765	5431

FISCAL YEAR 1996 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	0	0	1	0	1
9	1	100.00	0	1	0	0	1	0	1
10	1	100.00	0	1	0	0	1	0	1
11	2	100.00	0	2	0	0	2	0	3
12	3	100.00	0	3	1	0	3	0	4
13	8	95.65	0	8	1	0	8	0	9
14	28	97.70	1	27	1	0	27	415	443
15	414	99.25	3	411	1	0	411	84	496
16	572	98.45	9	563	1	0	563	5	569
17	576	98.21	10	566	1	0	566	0	567
18	584	95.70	25	559	1	0	559	0	559
19	529	86.50	71	458	0	5	453	0	453
20	454	86.00	64	390	0	186	204	0	204
21	232	80.00	46	186	0	72	114	0	114
22	108	55.00	49	59	0	0	59	0	59
23	69	55.00	31	38	0	0	38	0	38
24	45	50.00	22	23	0	0	23	0	23
25	19	40.00	11	8	0	0	8	0	8
26	5	20.00	4	1	0	0	1	0	1
27	1	50.00	0	1	0	0	1	0	1
28	1	50.00	0	1	0	0	1	0	1
TOT	3653	90.53	346	3307	7	262	3044	503	3555

**** URL Officer Promotion Model ****

CURRENT YEAR (1997) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	4106	N/A	96.05	162	3944	2094		
O-2	3742	N/A	90.59	352	3390	29	2.00	95.00
O-3	11503	N/A	84.00	1840	9663	17	4.00	95.00
O-4	5431	5214	92.06	431	5000	14	10.29	70.00
O-5	3555	3422	90.49	338	3217	7	15.16	70.00
O-6	1661	1625	84.10	264	1397	0	21.18	50.00

FISCAL YEAR 1997 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2074	96.01	83	1991	2074	16	0	0.00	0	0	0
1	2010	96.41	72	1938	19	17	0	0.00	0	0	0
2	19	75.00	5	14	1	18	0	0.00	0	0	0
3	2	50.00	1	1	0	19	0	0.00	0	0	0
4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	0	0.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	4106	96.05	162	3944	2094

FISCAL YEAR 1997 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	75.00	0	1	1	16	0	0.00	0	0	0
1	22	93.81	1	21	21	17	0	0.00	0	0	0
2	1823	94.96	92	1731	2	18	0	0.00	0	0	0
3	1874	86.54	252	1622	3	19	0	0.00	0	0	0
4	21	68.41	7	14	2	20	0	0.00	0	0	0
5	1	50.00	0	1	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0

9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3742	90.59	352	3390	29

FISCAL YEAR 1997 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2	100.00	0	2	2	16	0	0.00	0	0	0
1	2	100.00	0	2	0	17	0	0.00	0	0	0
2	2	100.00	0	2	1	18	0	0.00	0	0	0
3	3	86.70	0	3	0	19	0	0.00	0	0	0
4	2020	85.50	293	1727	2	20	0	0.00	0	0	0
5	1951	88.60	222	1729	1	21	0	0.00	0	0	0
6	1975	84.80	300	1675	2	22	0	0.00	0	0	0
7	1793	79.20	373	1420	2	23	0	0.00	0	0	0
8	1406	85.40	205	1201	2	24	0	0.00	0	0	0
9	1366	93.00	96	1270	2	25	0	0.00	0	0	0
10	678	80.20	134	544	2	26	0	0.00	0	0	0
11	240	24.00	182	58	1	27	0	0.00	0	0	0
12	44	38.87	27	17	0	28	0	0.00	0	0	0
13	18	62.51	7	11	0	29	0	0.00	0	0	0
14	3	50.00	1	2	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	11503	84.00	1840	9663	17

FISCAL YEAR 1997 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	191	91.50	16	175	0
1	0	100.00	0	0	0	17	184	92.50	14	170	0
2	0	100.00	0	0	0	18	191	83.50	32	159	0
3	1	100.00	0	1	0	19	165	15.00	140	25	0
4	2	100.00	0	2	0	20	28	5.00	27	1	0
5	2	100.00	0	2	1	21	2	0.00	2	0	0
6	3	100.00	0	3	1	22	0	0.00	0	0	0
7	5	83.33	1	4	1	23	0	0.00	0	0	0
8	7	100.00	0	7	2	24	0	0.00	0	0	0
9	26	95.95	1	25	3	25	0	0.00	0	0	0
10	552	96.45	20	532	3	26	0	0.00	0	0	0
11	1015	95.95	41	974	3	27	0	0.00	0	0	0
12	1027	94.94	52	975	0	28	0	0.00	0	0	0
13	864	96.46	31	833	0	29	0	0.00	0	0	0
14	793	96.49	28	765	0	30	0	0.00	0	0	0
15	382	90.82	35	347	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5431	92.06	431	5000	14

FISCAL YEAR 1997 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	557	98.45	9	548	1
1	0	0.00	0	0	0	17	560	98.21	10	550	1
2	0	0.00	0	0	0	18	569	95.70	24	545	1
3	0	100.00	0	0	0	19	515	86.50	70	445	0
4	0	100.00	0	0	0	20	442	86.00	62	380	0
5	0	100.00	0	0	0	21	225	80.00	45	180	0
6	0	100.00	0	0	0	22	105	55.00	47	58	0
7	0	100.00	0	0	0	23	67	55.00	30	37	0
8	1	100.00	0	1	0	24	44	50.00	22	22	0
9	1	100.00	0	1	0	25	18	40.00	11	7	0
10	1	100.00	0	1	0	26	5	20.00	4	1	0
11	2	100.00	0	2	0	27	1	50.00	0	1	0
12	3	100.00	0	3	1	28	1	50.00	0	1	0
13	7	95.65	0	7	1	29	0	0.00	0	0	0
14	28	97.70	1	27	1	30	0	0.00	0	0	0
15	403	99.25	3	400	1						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3555	90.49	338	3217	7

FISCAL YEAR 1997 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2074	96.01	83	1991	2074	0	1991	0	2010
1	2010	96.41	72	1938	19	1919	19	0	20
2	19	75.00	5	14	1	13	1	0	1
3	2	50.00	1	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0
TOT	4106	96.05	162	3944	2094	1932	2012	0	4106

FISCAL YEAR 1997 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	75.00	0	1	1	0	1	0	22
1	22	93.81	1	21	21	0	21	1919	1942
2	1823	94.96	92	1731	2	0	1731	13	1747
3	1874	86.54	252	1622	3	1606	16	0	18
4	21	68.41	7	14	2	14	0	0	0
5	1	50.00	0	1	0	0	1	0	1
TOT	3742	90.59	352	3390	29	1706	1770	1932	3731

FISCAL YEAR 1997 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2	100.00	0	2	2	0	2	0	2
1	2	100.00	0	2	0	0	2	0	3
2	2	100.00	0	2	1	0	2	0	2
3	3	86.70	0	3	0	0	3	1606	1611
4	2020	85.50	293	1727	2	0	1727	14	1742
5	1951	88.60	222	1729	1	0	1729	0	1731
6	1975	84.80	300	1675	2	0	1675	0	1677
7	1793	79.20	373	1420	2	0	1420	0	1422
8	1406	85.40	205	1201	2	0	1201	0	1203
9	1366	93.00	96	1270	2	406	864	0	866
10	678	80.20	134	544	2	239	305	0	306
11	240	24.00	182	58	1	7	51	0	51
12	44	38.87	27	17	0	0	17	0	17
13	18	62.51	7	11	0	0	11	0	11
14	3	50.00	1	2	0	0	2	0	2
TOT	11503	84.00	1840	9663	17	651	9011	1706	10648

FISCAL YEAR 1997 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	1
4	2	100.00	0	2	0	0	2	0	3
5	2	100.00	0	2	1	0	2	0	2
6	3	100.00	0	3	1	0	3	0	4
7	5	83.33	1	4	1	0	4	0	6
8	7	100.00	0	7	2	0	7	0	10
9	26	95.95	1	25	3	0	25	406	434
10	552	96.45	20	532	3	0	532	239	774
11	1015	95.95	41	974	3	0	974	7	981
12	1027	94.94	52	975	0	0	975	0	975
13	864	96.46	31	833	0	0	833	0	833
14	793	96.49	28	765	0	346	419	0	419
15	382	90.82	35	347	0	101	246	0	246
16	191	91.50	16	175	0	5	170	0	170
17	184	92.50	14	170	0	0	170	0	170
18	191	83.50	32	159	0	0	159	0	159
19	165	15.00	140	25	0	0	25	0	25
20	28	5.00	27	1	0	0	1	0	1
21	2	0.00	2	0	0	0	0	0	0
TOT	5431	92.06	431	5000	14	451	4548	651	5214

FISCAL YEAR 1997 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	0	0	1	0	1
9	1	100.00	0	1	0	0	1	0	1
10	1	100.00	0	1	0	0	1	0	1
11	2	100.00	0	2	0	0	2	0	3
12	3	100.00	0	3	1	0	3	0	4
13	7	95.65	0	7	1	0	7	0	8
14	28	97.70	1	27	1	0	27	346	374
15	403	99.25	3	400	1	0	400	101	502
16	557	98.45	9	548	1	0	548	5	554
17	560	98.21	10	550	1	0	550	0	551
18	569	95.70	24	545	1	0	545	0	545
19	515	86.50	70	445	0	8	437	0	437
20	442	86.00	62	380	0	186	194	0	194
21	225	80.00	45	180	0	61	119	0	119
22	105	55.00	47	58	0	0	58	0	58
23	67	55.00	30	37	0	0	37	0	37
24	44	50.00	22	22	0	0	22	0	22
25	18	40.00	11	7	0	0	7	0	7
26	5	20.00	4	1	0	0	1	0	1
27	1	50.00	0	1	0	0	1	0	1
28	1	50.00	0	1	0	0	1	0	1
TOT	3555	90.49	338	3217	7	253	2962	451	3421

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CURRENT YEAR (1998) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	4106	N/A	96.08	161	3945	2094		
O-2	3731	N/A	90.86	341	3390	29	2.00	95.00
O-3	10648	N/A	83.24	1785	8863	17	4.00	95.00
O-4	5214	5075	92.08	413	4801	14	10.52	70.00
O-5	3422	3320	90.56	323	3099	7	15.28	70.00
O-6	1625	1574	84.10	258	1367	0	21.17	50.00

FISCAL YEAR 1998 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2074	96.01	83	1991	2074	16	0	0.00	0	0	0
1	2010	96.41	72	1938	19	17	0	0.00	0	0	0
2	20	75.00	5	15	1	18	0	0.00	0	0	0
3	1	50.00	0	1	0	19	0	0.00	0	0	0
4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	0	0.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	4106	96.08	161	3945	2094

FISCAL YEAR 1998 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	75.00	0	1	1	16	0	0.00	0	0	0
1	22	93.81	1	21	21	17	0	0.00	0	0	0
2	1942	94.96	98	1844	2	18	0	0.00	0	0	0
3	1747	86.54	235	1512	3	19	0	0.00	0	0	0
4	18	68.41	6	12	2	20	0	0.00	0	0	0
5	0	50.00	0	0	0	21	0	0.00	0	0	0
6	1	0.00	1	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0

8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3731	90.86	341	3390	29

FISCAL YEAR 1998 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2	100.00	0	2	2	16	0	0.00	0	0	0
1	2	100.00	0	2	0	17	0	0.00	0	0	0
2	3	100.00	0	3	1	18	0	0.00	0	0	0
3	2	86.70	0	2	0	19	0	0.00	0	0	0
4	1611	85.50	234	1377	2	20	0	0.00	0	0	0
5	1742	88.60	199	1543	1	21	0	0.00	0	0	0
6	1731	84.80	263	1468	2	22	0	0.00	0	0	0
7	1677	79.20	349	1328	2	23	0	0.00	0	0	0
8	1422	85.40	208	1214	2	24	0	0.00	0	0	0
9	1203	93.00	84	1119	2	25	0	0.00	0	0	0
10	866	80.20	171	695	2	26	0	0.00	0	0	0
11	306	24.00	233	73	1	27	0	0.00	0	0	0
12	51	38.87	31	20	0	28	0	0.00	0	0	0
13	17	62.51	6	11	0	29	0	0.00	0	0	0
14	11	50.00	5	6	0	30	0	0.00	0	0	0
15	2	0.00	2	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	10648	83.24	1785	8863	17

FISCAL YEAR 1998 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	184	91.50	16	168	0
1	0	100.00	0	0	0	17	177	92.50	13	164	0
2	0	100.00	0	0	0	18	183	83.50	30	153	0
3	1	100.00	0	1	0	19	158	15.00	134	24	0
4	2	100.00	0	2	0	20	27	5.00	26	1	0
5	2	100.00	0	2	1	21	2	0.00	2	0	0
6	3	100.00	0	3	1	22	0	0.00	0	0	0
7	5	83.33	1	4	1	23	0	0.00	0	0	0
8	6	100.00	0	6	2	24	0	0.00	0	0	0
9	25	95.95	1	24	3	25	0	0.00	0	0	0
10	530	96.45	19	511	3	26	0	0.00	0	0	0
11	974	95.95	39	935	3	27	0	0.00	0	0	0
12	986	94.94	50	936	0	28	0	0.00	0	0	0
13	829	96.46	29	800	0	29	0	0.00	0	0	0
14	761	96.49	27	734	0	30	0	0.00	0	0	0
15	367	90.82	34	333	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5214	92.08	413	4801	14

FISCAL YEAR 1998 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	536	98.45	8	528	1
1	0	0.00	0	0	0	17	539	98.21	10	529	1
2	0	0.00	0	0	0	18	548	95.70	24	524	1
3	0	100.00	0	0	0	19	496	86.50	67	429	0
4	0	100.00	0	0	0	20	425	86.00	59	366	0
5	0	100.00	0	0	0	21	217	80.00	43	174	0
6	0	100.00	0	0	0	22	101	55.00	45	56	0
7	0	100.00	0	0	0	23	65	55.00	29	36	0
8	1	100.00	0	1	0	24	42	50.00	21	21	0
9	1	100.00	0	1	0	25	17	40.00	10	7	0
10	1	100.00	0	1	0	26	4	20.00	3	1	0
11	2	100.00	0	2	0	27	1	50.00	0	1	0
12	3	100.00	0	3	1	28	1	50.00	0	1	0
13	7	95.65	0	7	1	29	0	0.00	0	0	0
14	27	97.70	1	26	1	30	0	0.00	0	0	0

15	388	99.25	3	385	1				

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3422	90.56	323	3099	7

FISCAL YEAR 1998 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2074	96.01	83	1991	2074	0	1991	0	2010
1	2010	96.41	72	1938	19	1919	19	0	20
2	20	75.00	5	15	1	13	2	0	2
3	1	50.00	0	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0
TOT	4106	96.08	161	3945	2094	1932	2013	0	4107

FISCAL YEAR 1998 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	75.00	0	1	1	0	1	0	22
1	22	93.81	1	21	21	0	21	1919	1942
2	1942	94.96	98	1844	2	0	1844	13	1860
3	1747	86.54	235	1512	3	1498	14	0	16
4	18	68.41	6	12	2	12	0	0	0
6	1	0.00	1	0	0	0	0	0	0
TOT	3731	90.86	341	3390	29	1590	1880	1932	3841

FISCAL YEAR 1998 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2	100.00	0	2	2	0	2	0	2
1	2	100.00	0	2	0	0	2	0	3
2	3	100.00	0	3	1	0	3	0	3
3	2	86.70	0	2	0	0	2	1498	1502
4	1611	85.50	234	1377	2	0	1377	12	1390
5	1742	88.60	199	1543	1	0	1543	0	1545
6	1731	84.80	263	1468	2	0	1468	0	1470
7	1677	79.20	349	1328	2	0	1328	0	1330
8	1422	85.40	208	1214	2	0	1214	0	1216
9	1202	93.00	84	1119	2	342	777	0	779
10	866	80.20	171	695	2	357	338	0	339
11	306	24.00	233	73	1	8	65	0	65
12	51	38.87	31	20	0	0	20	0	20
13	17	62.51	6	11	0	0	11	0	11
14	11	50.00	5	6	0	0	6	0	6
15	2	0.00	2	0	0	0	0	0	0
TOT	10648	83.24	1785	8863	17	706	8156	1590	9683

FISCAL YEAR 1998 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	1
4	2	100.00	0	2	0	0	2	0	3
5	2	100.00	0	2	1	0	2	0	3
6	3	100.00	0	3	1	0	3	0	4
7	5	83.33	1	4	1	0	4	0	6
8	6	100.00	0	6	2	0	6	0	9
9	25	95.95	1	24	3	0	24	342	369
10	530	96.45	19	511	3	0	511	357	871
11	974	95.95	39	935	3	0	935	8	943
12	986	94.94	50	936	0	0	936	0	936
13	829	96.46	29	800	0	0	800	0	800
14	761	96.49	27	734	0	327	407	0	407
15	367	90.82	34	333	0	116	217	0	217
16	184	91.50	16	168	0	5	163	0	163
17	177	92.50	13	164	0	0	164	0	164
18	183	83.50	30	153	0	0	153	0	153
19	158	15.00	134	24	0	0	24	0	24
20	27	5.00	26	1	0	0	1	0	1
21	2	0.00	2	0	0	0	0	0	0
TOT	5214	92.08	413	4801	14	446	4353	706	5074

FISCAL YEAR 1998 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	0	0	1	0	1
9	1	100.00	0	1	0	0	1	0	1
10	1	100.00	0	1	0	0	1	0	1
11	2	100.00	0	2	0	0	2	0	3
12	3	100.00	0	3	1	0	3	0	4
13	7	95.65	0	7	1	0	7	0	8
14	27	97.70	1	26	1	0	26	327	354
15	388	99.25	3	385	1	0	385	116	502
16	536	98.45	8	528	1	0	528	5	534
17	539	98.21	10	529	1	0	529	0	530
18	548	95.70	24	524	1	0	524	0	524
19	496	86.50	67	429	0	0	429	0	429
20	425	86.00	59	366	0	175	191	0	191
21	217	80.00	43	174	0	58	116	0	116
22	101	55.00	45	56	0	0	56	0	56
23	65	55.00	29	36	0	0	36	0	36
24	42	50.00	21	21	0	0	21	0	21
25	17	40.00	10	7	0	0	7	0	7
26	4	20.00	3	1	0	0	1	0	1
27	1	50.00	0	1	0	0	1	0	1
28	1	50.00	0	1	0	0	1	0	1
TOT	3422	90.56	323	3099	7	232	2866	446	3321

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CURRENT YEAR (1999) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	4107	N/A	96.06	162	3945	2094		
O-2	3841	N/A	90.78	354	3487	29	2.00	95.00
O-3	9683	N/A	82.79	1666	8017	17	4.00	95.00
O-4	5075	5065	92.08	402	4673	14	10.55	70.00
O-5	3320	3331	90.51	315	3005	7	15.29	70.00
O-6	1574	1580	84.10	250	1324	0	21.21	50.00

FISCAL YEAR 1999 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2074	96.01	83	1991	2074	16	0	0.00	0	0	0
1	2010	96.41	72	1938	19	17	0	0.00	0	0	0
2	20	75.00	5	15	1	18	0	0.00	0	0	0
3	2	50.00	1	1	0	19	0	0.00	0	0	0
4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	0	0.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	4107	96.06	162	3945	2094

FISCAL YEAR 1999 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	75.00	0	1	1	16	0	0.00	0	0	0
1	22	93.81	1	21	21	17	0	0.00	0	0	0
2	1942	94.96	98	1844	2	18	0	0.00	0	0	0
3	1860	86.54	250	1610	3	19	0	0.00	0	0	0
4	16	68.41	5	11	2	20	0	0.00	0	0	0
5	0	50.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0

8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3841	90.78	354	3487	29

FISCAL YEAR 1999 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2	100.00	0	2	2	16	0	0.00	0	0	0
1	2	100.00	0	2	0	17	0	0.00	0	0	0
2	3	100.00	0	3	1	18	0	0.00	0	0	0
3	3	86.70	0	3	0	19	0	0.00	0	0	0
4	1502	85.50	218	1284	2	20	0	0.00	0	0	0
5	1390	88.60	158	1232	1	21	0	0.00	0	0	0
6	1545	84.80	235	1310	2	22	0	0.00	0	0	0
7	1470	79.20	306	1164	2	23	0	0.00	0	0	0
8	1330	85.40	194	1136	2	24	0	0.00	0	0	0
9	1216	93.00	85	1131	2	25	0	0.00	0	0	0
10	779	80.20	154	625	2	26	0	0.00	0	0	0
11	339	24.00	258	81	1	27	0	0.00	0	0	0
12	65	38.87	40	25	0	28	0	0.00	0	0	0
13	20	62.51	7	13	0	29	0	0.00	0	0	0
14	11	50.00	5	6	0	30	0	0.00	0	0	0
15	6	0.00	6	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	9683	82.79	1666	8017	17

FISCAL YEAR 1999 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	179	91.50	15	164	0
1	0	100.00	0	0	0	17	172	92.50	13	159	0
2	0	100.00	0	0	0	18	178	83.50	29	149	0
3	1	100.00	0	1	0	19	154	15.00	131	23	0
4	2	100.00	0	2	0	20	26	5.00	25	1	0
5	2	100.00	0	2	1	21	2	0.00	2	0	0
6	3	100.00	0	3	1	22	0	0.00	0	0	0
7	5	83.33	1	4	1	23	0	0.00	0	0	0
8	6	100.00	0	6	2	24	0	0.00	0	0	0
9	24	95.95	1	23	3	25	0	0.00	0	0	0
10	516	96.45	18	498	3	26	0	0.00	0	0	0
11	948	95.95	38	910	3	27	0	0.00	0	0	0
12	960	94.94	49	911	0	28	0	0.00	0	0	0
13	807	96.46	29	778	0	29	0	0.00	0	0	0
14	741	96.49	26	715	0	30	0	0.00	0	0	0
15	357	90.82	33	324	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5075	92.08	402	4673	14

FISCAL YEAR 1999 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	520	98.45	8	512	1
1	0	0.00	0	0	0	17	523	98.21	9	514	1
2	0	0.00	0	0	0	18	531	95.70	23	508	1
3	0	100.00	0	0	0	19	481	86.50	65	416	0
4	0	100.00	0	0	0	20	412	86.00	58	354	0
5	0	100.00	0	0	0	21	210	80.00	42	168	0
6	0	100.00	0	0	0	22	98	55.00	44	54	0
7	0	100.00	0	0	0	23	63	55.00	28	35	0
8	1	100.00	0	1	0	24	41	50.00	20	21	0
9	1	100.00	0	1	0	25	17	40.00	10	7	0
10	1	100.00	0	1	0	26	4	20.00	3	1	0
11	2	100.00	0	2	0	27	1	50.00	0	1	0
12	3	100.00	0	3	1	28	1	50.00	0	1	0
13	7	95.65	0	7	1	29	0	0.00	0	0	0
14	26	97.70	1	25	1	30	0	0.00	0	0	0

15	376	99.25	3	373	1

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3320	90.51	315	3005	7

FISCAL YEAR 1999 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2074	96.01	83	1991	2074	0	1991	0	2010
1	2010	96.41	72	1938	19	1919	19	0	20
2	20	75.00	5	15	1	13	2	0	2
3	2	50.00	1	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0
TOT	4107	96.06	162	3945	2094	1932	2013	0	4107

FISCAL YEAR 1999 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	75.00	0	1	1	0	1	0	22
1	22	93.81	1	21	21	0	21	1919	1942
2	1942	94.96	98	1844	2	0	1844	13	1860
3	1860	86.54	250	1610	3	1595	15	0	17
4	16	68.41	5	11	2	10	1	0	1
TOT	3841	90.78	354	3487	29	1690	1882	1932	3843

FISCAL YEAR 1999 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2	100.00	0	2	2	0	2	0	2
1	2	100.00	0	2	0	0	2	0	3
2	3	100.00	0	3	1	0	3	0	3
3	3	86.70	0	3	0	0	3	1595	1600
4	1502	85.50	218	1284	2	0	1284	10	1295
5	1390	88.60	158	1232	1	0	1232	0	1234
6	1545	84.80	235	1310	2	0	1310	0	1312
7	1470	79.20	306	1164	2	0	1164	0	1166
8	1330	85.40	194	1136	2	0	1136	0	1138
9	1216	93.00	85	1131	2	638	493	0	495
10	779	80.20	154	625	2	331	294	0	295
11	339	24.00	258	81	1	11	70	0	70
12	65	38.87	40	25	0	0	25	0	25
13	20	62.51	7	13	0	0	13	0	13
14	11	50.00	5	6	0	0	6	0	6
15	6	0.00	6	0	0	0	0	0	0
TOT	9683	82.79	1666	8017	17	978	7037	1690	8659

FISCAL YEAR 1999 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	1
4	2	100.00	0	2	0	0	2	0	3
5	2	100.00	0	2	1	0	2	0	3
6	3	100.00	0	3	1	0	3	0	4
7	5	83.33	1	4	1	0	4	0	6
8	6	100.00	0	6	2	0	6	0	9
9	24	95.95	1	23	3	0	23	638	664
10	516	96.45	18	498	3	0	498	331	832
11	948	95.95	38	910	3	0	910	11	921
12	960	94.94	49	911	0	0	911	0	911
13	807	96.46	29	778	0	43	735	0	735
14	741	96.49	26	715	0	436	279	0	279
15	357	90.82	33	324	0	116	208	0	208
16	179	91.50	15	164	0	6	158	0	158
17	172	92.50	13	159	0	0	159	0	159
18	178	83.50	29	149	0	0	149	0	149
19	154	15.00	131	23	0	0	23	0	23
20	26	5.00	25	1	0	0	1	0	1
21	2	0.00	2	0	0	0	0	0	0
TOT	5075	92.08	402	4673	14	600	4072	978	5066

FISCAL YEAR 1999 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	0	0	1	0	1
9	1	100.00	0	1	0	0	1	0	1
10	1	100.00	0	1	0	0	1	0	1
11	2	100.00	0	2	0	0	2	0	3
12	3	100.00	0	3	1	0	3	0	4
13	7	95.65	0	7	1	0	7	43	51
14	26	97.70	1	25	1	0	25	436	462
15	376	99.25	3	373	1	0	373	116	490
16	520	98.45	8	512	1	0	512	6	519
17	523	98.21	9	514	1	0	514	0	515
18	531	95.70	23	508	1	0	508	0	508
19	481	86.50	65	416	0	52	364	0	364
20	412	86.00	58	354	0	173	181	0	181
21	210	80.00	42	168	0	58	110	0	110
22	98	55.00	44	54	0	0	54	0	54
23	63	55.00	28	35	0	0	35	0	35
24	41	50.00	20	21	0	0	21	0	21
25	17	40.00	10	7	0	0	7	0	7
26	4	20.00	3	1	0	0	1	0	1
27	1	50.00	0	1	0	0	1	0	1
28	1	50.00	0	1	0	0	1	0	1
TOT	3320	90.51	315	3005	7	281	2722	600	3330

**** URL Officer Promotion Model ****

CURRENT YEAR (2000) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	0	N/A	0.00	0	0	0		
O-2	0	N/A	0.00	0	0	0	0.00	0.00
O-3	0	N/A	0.00	0	0	0	0.00	0.00
O-4	0	0	0.00	0	0	0	10.15	70.00
O-5	0	0	0.00	0	0	0	14.94	70.00
O-6	0	0	0.00	0	0	0	20.94	50.00

APPENDIX D.1 IMPLEMENTATION RUN II OUTPUT

MODEL IMPLEMENTATION RUN 2 FY95-99
LESS CONSERVATIVE CONTINUATION RATES

**** URL Officer Promotion Model ****

CURRENT YEAR (1995) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	3999	N/A	96.05	158	3841	2094		
O-2	5142	N/A	90.43	492	4650	29	2.00	95.00
O-3	13052	N/A	84.45	2030	11022	17	4.00	95.00
O-4	5736	5634	91.67	478	5258	14	10.25	70.00
O-5	3653	3599	89.60	380	3273	7	15.33	70.00
O-6	1710	1698	87.19	219	1491	4	21.25	55.00

FISCAL YEAR 1995 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1945	96.00	78	1867	2074	16	0	0.00	0	0	0
1	2027	96.40	73	1954	19	17	0	0.00	0	0	0
2	25	75.00	6	19	1	18	0	0.00	0	0	0
3	1	50.00	0	1	0	19	0	0.00	0	0	0
4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	0	0.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3999	96.05	158	3841	2094

FISCAL YEAR 1995 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	100.00	0	1	1	16	0	0.00	0	0	0
1	21	93.80	1	20	21	17	0	0.00	0	0	0
2	2455	94.90	124	2331	2	18	0	0.00	0	0	0
3	2634	86.50	355	2279	3	19	0	0.00	0	0	0
4	26	50.00	8	18	2	20	0	0.00	0	0	0
5	1	0.00	0	1	0	21	0	0.00	0	0	0
6	4	0.00	4	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5142	90.43	492	4650	29

FISCAL YEAR 1995 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	100.00	0	1	2	16	0	0.00	0	0	0

1	2	100.00	0	2	0	17	0	0.00	0	0	0
2	2	100.00	0	2	1	18	0	0.00	0	0	0
3	3	91.90	0	3	0	19	0	0.00	0	0	0
4	2583	85.80	375	2208	2	20	0	0.00	0	0	0
5	2381	87.90	271	2110	1	21	0	0.00	0	0	0
6	2088	83.50	317	1771	2	22	0	0.00	0	0	0
7	2014	80.70	419	1595	2	23	0	0.00	0	0	0
8	1709	86.60	250	1459	2	24	0	0.00	0	0	0
9	1526	91.40	107	1419	2	25	0	0.00	0	0	0
10	483	65.00	96	387	2	26	0	0.00	0	0	0
11	248	24.00	188	60	1	27	0	0.00	0	0	0
12	12	0.00	7	5	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	13052	84.45	2030	11022	17

FISCAL YEAR 1995 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	202	90.50	19	183	0
1	0	100.00	0	0	0	17	194	91.50	16	178	0
2	0	100.00	0	0	0	18	201	82.50	35	166	0
3	1	100.00	0	1	0	19	174	15.00	148	26	0
4	2	100.00	0	2	0	20	30	5.00	28	2	0
5	2	100.00	0	2	1	21	2	0.00	2	0	0
6	3	100.00	0	3	1	22	0	0.00	0	0	0
7	5	83.33	1	4	1	23	0	0.00	0	0	0
8	7	100.00	0	7	2	24	0	0.00	0	0	0
9	27	95.95	1	26	3	25	0	0.00	0	0	0
10	583	96.25	22	561	3	26	0	0.00	0	0	0
11	1071	95.50	48	1023	3	27	0	0.00	0	0	0
12	1085	94.50	60	1025	0	28	0	0.00	0	0	0
13	912	96.25	34	878	0	29	0	0.00	0	0	0
14	837	96.25	31	806	0	30	0	0.00	0	0	0
15	403	90.50	38	365	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5736	91.67	478	5258	14

FISCAL YEAR 1995 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	573	98.25	10	562	1
1	0	0.00	0	0	0	17	576	98.10	11	565	1
2	0	0.00	0	0	0	18	584	95.50	26	558	1
3	0	100.00	0	0	0	19	529	86.25	73	456	0
4	0	100.00	0	0	0	20	454	85.50	66	388	0
5	0	100.00	0	0	0	21	232	79.50	48	184	0
6	0	100.00	0	0	0	22	108	50.00	54	54	0
7	0	100.00	0	0	0	23	69	40.00	41	28	0
8	1	100.00	0	1	0	24	45	40.00	27	18	0
9	1	100.00	0	1	0	25	19	30.00	13	6	0
10	1	100.00	0	1	0	26	5	10.00	4	1	0
11	2	100.00	0	2	0	27	1	0.00	1	0	0
12	3	100.00	0	3	1	28	1	0.00	1	0	0
13	8	95.50	0	8	1	29	0	0.00	0	0	0
14	28	97.50	1	27	1	30	0	0.00	0	0	0
15	414	99.00	4	410	1						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3653	89.60	380	3273	7

FISCAL YEAR 1995 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1945	96.00	78	1867	2074	0	1867	0	1886
1	2027	96.40	73	1954	19	1935	19	0	20
2	25	75.00	6	19	1	17	2	0	2
3	1	50.00	0	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0

TOT	3999	96.05	158	3841	2094	1952	1889	0	3983	

FISCAL YEAR 1995 O-1 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
0	1945	96.00	78	1867	2074	0	1867	0	1886	1886
1	2027	96.40	73	1954	19	1935	19	0	20	20
2	25	75.00	6	19	1	17	2	0	2	2
3	1	50.00	1	1	0	0	1	0	1	1
4	1	0.00	1	0	0	0	0	0	0	0
TOT	3999	96.05	159	3841	2094	1952	1889	0	3983	3983

FISCAL YEAR 1995 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	100.00	0	1	1	0	1	0	22
1	21	93.80	1	20	21	0	20	1935	1957
2	2455	94.90	124	2331	2	0	2331	17	2351
3	2634	86.50	355	2279	3	2258	21	0	23
4	26	50.00	8	18	2	18	0	0	0
5	1	0.00	0	1	0	0	1	0	1
6	4	0.00	4	0	0	0	0	0	0
TOT	5142	90.43	492	4650	29	2396	2374	1952	4355

FISCAL YEAR 1995 O-2 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
0	1	100.00	0	1	1	0	1	0	22	22
1	21	93.80	1	20	21	0	20	1935	1957	1957
2	2455	94.90	125	2330	2	0	2330	17	2350	2351
3	2634	86.50	356	2278	3	2256	21	0	23	23
4	26	50.00	13	13	2	18	0	0	0	0
5	1	0.00	1	0	0	0	0	0	0	1
6	4	0.00	4	0	0	0	0	0	0	0
TOT	5142	90.28	500	4642	29	2396	2372	1952	4353	4355

FISCAL YEAR 1995 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	100.00	0	1	2	0	1	0	1
1	2	100.00	0	2	0	0	2	0	3
2	2	100.00	0	2	1	0	2	0	2
3	3	91.90	0	3	0	0	3	2258	2263
4	2583	85.80	375	2208	2	0	2208	18	2227
5	2381	87.90	271	2110	1	0	2110	0	2112
6	2088	83.50	317	1771	2	0	1771	0	1773
7	2014	80.70	419	1595	2	0	1595	0	1597
8	1709	86.60	250	1459	2	90	1369	0	1371
9	1526	91.40	107	1419	2	925	494	0	496
10	483	65.00	96	387	2	173	214	0	215
11	248	24.00	188	60	1	13	47	0	47
12	12	0.00	7	5	0	0	5	0	5
TOT	13052	84.45	2030	11022	17	1198	9821	2396	12114

FISCAL YEAR 1995 O-3 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
0	1	100.00	0	1	2	0	1	0	1	1
1	2	100.00	0	2	0	0	2	0	3	3
2	2	100.00	0	2	1	0	2	0	2	2
3	3	91.90	0	3	0	0	3	2258	2263	2263
4	2583	85.80	367	2216	2	0	2216	18	2235	2227
5	2381	87.90	288	2093	1	0	2093	0	2095	2112
6	2088	83.50	345	1743	2	0	1743	0	1745	1773
7	2014	80.70	389	1625	2	0	1625	0	1627	1597
8	1709	86.60	229	1480	2	90	1390	0	1392	1371
9	1526	91.40	131	1395	2	925	470	0	472	496

10	483	65.00	169	314	2	173	141	0	142	215
11	248	24.00	188	60	1	13	47	0	47	47
12	12	0.00	12	0	0	0	0	0	0	5
TOT	13052	83.77	2118	10934	17	1198	9733	2396	12026	12114

FISCAL YEAR 1995 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	1
4	2	100.00	0	2	0	0	2	0	3
5	2	100.00	0	2	1	0	2	0	3
6	3	100.00	0	3	1	0	3	0	4
7	5	83.33	1	4	1	0	4	0	6
8	7	100.00	0	7	2	0	7	90	100
9	27	95.95	1	26	3	0	26	925	954
10	583	96.25	22	561	3	0	561	173	737
11	1071	95.50	48	1023	3	0	1023	13	1036
12	1085	94.50	60	1025	0	0	1025	0	1025
13	912	96.25	34	878	0	87	791	0	791
14	837	96.25	31	806	0	517	289	0	289
15	403	90.50	38	365	0	138	227	0	227
16	202	90.50	19	183	0	8	175	0	175
17	194	91.50	16	178	0	0	178	0	178
18	201	82.50	35	166	0	0	166	0	166
19	174	15.00	148	26	0	0	26	0	26
20	30	5.00	28	2	0	0	2	0	2
21	2	0.00	2	0	0	0	0	0	0
TOT	5736	91.67	478	5258	14	748	4508	1198	5723

FISCAL YEAR 1995 O-4 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
3	1	100.00	0	1	0	0	1	0	1	0
4	1	100.00	0	1	0	0	1	0	1	1
5	1	100.00	0	1	1	0	1	0	2	3
6	3	100.00	0	3	1	0	3	0	4	4
7	4	100.00	0	4	1	0	4	0	6	6
8	10	100.00	0	10	2	0	10	90	100	100
9	17	95.90	1	16	3	0	16	925	944	954
10	614	96.40	22	592	3	0	592	173	768	737
11	737	95.90	30	707	3	0	707	13	720	1036
12	1020	94.90	52	968	0	0	968	0	968	1025
13	948	96.50	33	915	0	87	828	0	828	791
14	911	96.50	32	879	0	517	362	0	362	289
15	592	90.80	54	538	0	138	400	0	400	227
16	297	92.20	23	274	0	8	266	0	266	175
17	177	93.10	12	165	0	0	165	0	165	178
18	192	84.20	30	162	0	0	162	0	162	166
19	144	15.10	122	22	0	0	22	0	22	26
20	18	6.80	17	1	0	0	1	0	1	2
21	3	0.00	3	0	0	0	0	0	0	0
TOT	5690	92.43	431	5259	14	748	4509	1198	5724	5723

FISCAL YEAR 1995 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	0	0	1	0	1
9	1	100.00	0	1	0	0	1	0	1
10	1	100.00	0	1	0	0	1	0	1
11	2	100.00	0	2	0	0	2	0	3
12	3	100.00	0	3	1	0	3	0	4
13	8	95.50	0	8	1	0	8	87	96
14	28	97.50	1	27	1	0	27	517	545
15	414	99.00	4	410	1	0	410	138	549
16	572	98.25	10	562	1	0	562	8	571
17	576	98.10	11	565	1	0	565	0	566
18	584	95.50	26	558	1	0	558	0	558

19	529	86.25	73	456	0	0	456	0	456
20	454	85.50	66	388	0	157	231	0	231
21	232	79.50	48	184	0	69	115	0	115
22	108	50.00	54	54	0	3	51	0	51
23	69	40.00	41	28	0	0	28	0	28
24	45	40.00	27	18	0	0	18	0	18
25	19	30.00	13	6	0	0	6	0	6
26	5	10.00	4	1	0	0	1	0	1
27	1	0.00	1	0	0	0	0	0	0
28	1	0.00	1	0	0	0	0	0	0
TOT	3653	89.60	380	3273	7	228	3044	748	3801

FISCAL YEAR 1995 O-5 ACTUAL RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV	PINV
5	1	100.00	0	1	0	0	1	0	1	0
8	1	100.00	0	1	0	0	1	0	1	1
9	2	100.00	0	2	0	0	2	0	2	1
10	1	100.00	0	1	0	0	1	0	1	1
11	5	100.00	0	5	0	0	5	0	6	3
12	5	100.00	0	5	1	0	5	0	6	4
13	5	95.60	0	5	1	0	5	87	93	96
14	7	97.70	0	7	1	0	7	517	525	545
15	277	99.90	0	277	1	0	277	138	416	549
16	504	98.50	8	496	1	0	496	8	505	571
17	588	98.20	11	577	1	0	577	0	578	566
18	577	95.70	25	552	1	0	552	0	552	558
19	567	86.80	75	492	0	0	492	0	492	456
20	516	86.00	72	444	0	157	287	0	287	231
21	178	78.30	39	139	0	69	70	0	70	115
22	108	57.60	46	62	0	3	59	0	59	51
23	54	60.10	22	32	0	0	32	0	32	28
24	27	53.40	13	14	0	0	14	0	14	18
25	19	50.00	10	10	0	0	10	0	10	6
26	4	50.00	2	2	0	0	2	0	2	1
27	2	50.00	1	1	0	0	1	0	1	0
29	1	0.00	1	0	0	0	0	0	0	0
TOT	3449	90.61	325	3125	7	228	2896	748	3653	3801

**** URL Officer Promotion Model ****

CURRENT YEAR (1996) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	3983	N/A	96.03	158	3825	2094		
O-2	4355	N/A	90.26	424	3931	29	2.00	95.00
O-3	12114	N/A	84.37	1893	10221	17	4.00	95.00
O-4	5602	5431	91.68	466	5136	14	10.15	70.00
O-5	3653	3555	89.60	380	3273	7	14.87	70.00
O-6	1693	1661	83.00	288	1405	0	21.43	50.00

FISCAL YEAR 1996 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2074	96.01	83	1991	2074	16	0	0.00	0	0	0
1	1886	96.41	68	1818	19	17	0	0.00	0	0	0
2	20	75.00	5	15	1	18	0	0.00	0	0	0
3	2	50.00	1	1	0	19	0	0.00	0	0	0
4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	0	0.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0

13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3983	96.03	158	3825	2094

FISCAL YEAR 1996 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	75.00	0	1	1	16	0	0.00	0	0	0
1	22	93.81	1	21	21	17	0	0.00	0	0	0
2	1957	94.96	99	1858	2	18	0	0.00	0	0	0
3	2351	86.54	316	2035	3	19	0	0.00	0	0	0
4	23	68.41	7	16	2	20	0	0.00	0	0	0
5	0	50.00	0	0	0	21	0	0.00	0	0	0
6	1	0.00	1	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	4355	90.26	424	3931	29

FISCAL YEAR 1996 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2	100.00	0	2	2	16	0	0.00	0	0	0
1	1	100.00	0	1	0	17	0	0.00	0	0	0
2	3	100.00	0	3	1	18	0	0.00	0	0	0
3	2	86.70	0	2	0	19	0	0.00	0	0	0
4	2263	85.50	328	1935	2	20	0	0.00	0	0	0
5	2227	88.60	254	1977	1	21	0	0.00	0	0	0
6	2112	84.80	321	1791	2	22	0	0.00	0	0	0
7	1773	79.20	369	1404	2	23	0	0.00	0	0	0
8	1597	85.40	233	1364	2	24	0	0.00	0	0	0
9	1371	93.00	96	1275	2	25	0	0.00	0	0	0
10	496	80.20	98	398	2	26	0	0.00	0	0	0
11	215	24.00	163	52	1	27	0	0.00	0	0	0
12	47	38.87	29	18	0	28	0	0.00	0	0	0
13	5	62.51	2	3	0	29	0	0.00	0	0	0
14	0	50.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	12114	84.37	1893	10221	17

FISCAL YEAR 1996 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	197	90.50	19	178	0
1	0	100.00	0	0	0	17	190	91.50	16	174	0
2	0	100.00	0	0	0	18	197	82.50	34	163	0
3	1	100.00	0	1	0	19	170	15.00	144	26	0
4	2	100.00	0	2	0	20	29	5.00	28	1	0
5	2	100.00	0	2	1	21	2	0.00	2	0	0
6	3	100.00	0	3	1	22	0	0.00	0	0	0
7	5	83.33	1	4	1	23	0	0.00	0	0	0
8	7	100.00	0	7	2	24	0	0.00	0	0	0
9	26	95.95	1	25	3	25	0	0.00	0	0	0
10	569	96.25	21	548	3	26	0	0.00	0	0	0
11	1046	95.50	47	999	3	27	0	0.00	0	0	0
12	1059	94.50	58	1001	0	28	0	0.00	0	0	0
13	891	96.25	33	858	0	29	0	0.00	0	0	0
14	818	96.25	31	787	0	30	0	0.00	0	0	0
15	394	90.50	37	357	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5602	91.68	466	5136	14

FISCAL YEAR 1996 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	572	98.25	10	562	1
1	0	0.00	0	0	0	17	576	98.10	11	565	1
2	0	0.00	0	0	0	18	584	95.50	26	558	1
3	0	100.00	0	0	0	19	529	86.25	73	456	0
4	0	100.00	0	0	0	20	454	85.50	66	388	0
5	0	100.00	0	0	0	21	232	79.50	48	184	0
6	0	100.00	0	0	0	22	108	50.00	54	54	0
7	0	100.00	0	0	0	23	69	40.00	41	28	0
8	1	100.00	0	1	0	24	45	40.00	27	18	0
9	1	100.00	0	1	0	25	19	30.00	13	6	0
10	1	100.00	0	1	0	26	5	10.00	4	1	0
11	2	100.00	0	2	0	27	1	0.00	1	0	0
12	3	100.00	0	3	1	28	1	0.00	1	0	0
13	8	95.50	0	8	1	29	0	0.00	0	0	0
14	28	97.50	1	27	1	30	0	0.00	0	0	0
15	414	99.00	4	410	1						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3653	89.60	380	3273	7

FISCAL YEAR 1996 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2074	96.01	83	1991	2074	0	1991	0	2010
1	1886	96.41	68	1818	19	1800	18	0	19
2	20	75.00	5	15	1	13	2	0	2
3	2	50.00	1	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0
TOT	3983	96.03	158	3825	2094	1813	2012	0	4106

FISCAL YEAR 1996 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	75.00	0	1	1	0	1	0	22
1	22	93.81	1	21	21	0	21	1800	1823
2	1957	94.96	99	1858	2	0	1858	13	1874
3	2351	86.54	316	2035	3	2016	19	0	21
4	23	68.41	7	16	2	15	1	0	1
5	1	0.00	1	0	0	0	0	0	0
TOT	4355	90.26	424	3931	29	2138	1900	1813	3742

FISCAL YEAR 1996 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2	100.00	0	2	2	0	2	0	2
1	1	100.00	0	1	0	0	1	0	2
2	3	100.00	0	3	1	0	3	0	3
3	2	86.70	0	2	0	0	2	2016	2020
4	2263	85.50	328	1935	2	0	1935	15	1951
5	2227	88.60	254	1973	1	0	1973	0	1975
6	2112	84.80	321	1791	2	0	1791	0	1793
7	1773	79.20	369	1404	2	0	1404	0	1406
8	1597	85.40	233	1364	2	0	1364	0	1366
9	1371	93.00	96	1275	2	669	606	0	608
10	496	80.20	98	398	2	160	238	0	239
11	215	24.00	163	52	1	9	43	0	43
12	47	38.87	29	18	0	0	18	0	18
13	5	62.51	2	3	0	0	3	0	3
TOT	12114	84.37	1893	10221	17	837	9383	2138	11431

FISCAL YEAR 1996 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	1
4	2	100.00	0	2	0	0	2	0	3
5	2	100.00	0	2	1	0	2	0	3
6	3	100.00	0	3	1	0	3	0	4
7	5	83.33	1	4	1	0	4	0	6
8	7	100.00	0	7	2	0	7	0	10
9	26	95.95	1	25	3	0	25	669	697
10	569	96.25	21	548	3	0	548	160	711
11	1046	95.50	47	999	3	0	999	9	1008
12	1059	94.50	58	1001	0	0	1001	0	1001
13	891	96.25	33	858	0	64	794	0	794
14	818	96.25	31	787	0	488	299	0	299
15	394	90.50	37	357	0	6	351	0	351
16	197	90.50	19	178	0	0	178	0	178
17	190	91.50	16	174	0	0	174	0	174
18	197	82.50	34	163	0	0	163	0	163
19	170	15.00	144	26	0	0	26	0	26
20	29	5.00	28	1	0	0	1	0	1
21	2	0.00	2	0	0	0	0	0	0
TOT	5602	91.68	466	5136	14	556	4578	837	5430

FISCAL YEAR 1996 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	0	0	1	0	1
9	1	100.00	0	1	0	0	1	0	1
10	1	100.00	0	1	0	0	1	0	1
11	2	100.00	0	2	0	0	2	0	3
12	3	100.00	0	3	1	0	3	0	4
13	8	95.50	0	8	1	0	8	64	73
14	28	97.50	1	27	1	0	27	488	516
15	414	99.00	4	410	1	0	410	6	417
16	572	98.25	10	562	1	0	562	0	563
17	576	98.10	11	565	1	0	565	0	566
18	584	95.50	26	558	1	0	558	0	558
19	529	86.25	73	456	0	22	434	0	434
20	454	85.50	66	388	0	190	198	0	198
21	232	79.50	48	184	0	71	113	0	113
22	108	50.00	54	54	0	0	54	0	54
23	69	40.00	41	28	0	0	28	0	28
24	45	40.00	27	18	0	0	18	0	18
25	19	30.00	13	6	0	0	6	0	6
26	5	10.00	4	1	0	0	1	0	1
27	1	0.00	1	0	0	0	0	0	0
28	1	0.00	1	0	0	0	0	0	0
TOT	3653	89.60	380	3273	7	281	2990	556	3555

**** URL Officer Promotion Model ****

CURRENT YEAR (1997) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	4106	N/A	96.05	162	3944	2094		
O-2	3742	N/A	90.59	352	3390	29	2.00	95.00
O-3	11431	N/A	84.03	1825	9606	17	4.00	95.00
O-4	5431	5214	91.71	450	4981	14	10.20	70.00
O-5	3555	3422	89.59	370	3185	7	14.90	70.00
O-6	1661	1625	83.00	282	1379	0	21.10	50.00

FISCAL YEAR 1997 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2074	96.01	83	1991	2074	16	0	0.00	0	0	0
1	2010	96.41	72	1938	19	17	0	0.00	0	0	0
2	19	75.00	5	14	1	18	0	0.00	0	0	0
3	2	50.00	1	1	0	19	0	0.00	0	0	0

4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	0	0.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	4106	96.05	162	3944	2094

FISCAL YEAR 1997 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	75.00	0	1	1	16	0	0.00	0	0	0
1	22	93.81	1	21	21	17	0	0.00	0	0	0
2	1823	94.96	92	1731	2	18	0	0.00	0	0	0
3	1874	86.54	252	1622	3	19	0	0.00	0	0	0
4	21	68.41	7	14	2	20	0	0.00	0	0	0
5	1	50.00	0	1	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3742	90.59	352	3390	29

FISCAL YEAR 1997 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2	100.00	0	2	2	16	0	0.00	0	0	0
1	2	100.00	0	2	0	17	0	0.00	0	0	0
2	2	100.00	0	2	1	18	0	0.00	0	0	0
3	3	86.70	0	3	0	19	0	0.00	0	0	0
4	2020	85.50	293	1727	2	20	0	0.00	0	0	0
5	1951	88.60	222	1729	1	21	0	0.00	0	0	0
6	1975	84.80	300	1675	2	22	0	0.00	0	0	0
7	1793	79.20	373	1420	2	23	0	0.00	0	0	0
8	1406	85.40	205	1201	2	24	0	0.00	0	0	0
9	1366	93.00	96	1270	2	25	0	0.00	0	0	0
10	608	80.20	120	488	2	26	0	0.00	0	0	0
11	239	24.00	182	57	1	27	0	0.00	0	0	0
12	43	38.87	26	17	0	28	0	0.00	0	0	0
13	18	62.51	7	11	0	29	0	0.00	0	0	0
14	3	50.00	1	2	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	11431	84.03	1825	9606	17

FISCAL YEAR 1997 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	191	90.50	18	173	0
1	0	100.00	0	0	0	17	184	91.50	16	168	0
2	0	100.00	0	0	0	18	191	82.50	33	158	0
3	1	100.00	0	1	0	19	165	15.00	140	25	0
4	2	100.00	0	2	0	20	28	5.00	27	1	0
5	2	100.00	0	2	1	21	2	0.00	2	0	0
6	3	100.00	0	3	1	22	0	0.00	0	0	0

7	5	83.33	1	4	1	23	0	0.00	0	0	0
8	7	100.00	0	7	2	24	0	0.00	0	0	0
9	26	95.95	1	25	3	25	0	0.00	0	0	0
10	552	96.25	21	531	3	26	0	0.00	0	0	0
11	1015	95.50	46	969	3	27	0	0.00	0	0	0
12	1027	94.50	56	971	0	28	0	0.00	0	0	0
13	864	96.25	32	832	0	29	0	0.00	0	0	0
14	793	96.25	30	763	0	30	0	0.00	0	0	0
15	382	90.50	36	346	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5431	91.71	450	4981	14

FISCAL YEAR 1997 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	557	98.25	10	547	1
1	0	0.00	0	0	0	17	560	98.10	11	549	1
2	0	0.00	0	0	0	18	569	95.50	26	543	1
3	0	100.00	0	0	0	19	515	86.25	71	444	0
4	0	100.00	0	0	0	20	442	85.50	64	378	0
5	0	100.00	0	0	0	21	225	79.50	46	179	0
6	0	100.00	0	0	0	22	105	50.00	52	53	0
7	0	100.00	0	0	0	23	67	40.00	40	27	0
8	1	100.00	0	1	0	24	44	40.00	26	18	0
9	1	100.00	0	1	0	25	18	30.00	13	5	0
10	1	100.00	0	1	0	26	5	10.00	4	1	0
11	2	100.00	0	2	0	27	1	0.00	1	0	0
12	3	100.00	0	3	1	28	1	0.00	1	0	0
13	7	95.50	0	7	1	29	0	0.00	0	0	0
14	28	97.50	1	27	1	30	0	0.00	0	0	0
15	403	99.00	4	399	1						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3555	89.59	370	3185	7

FISCAL YEAR 1997 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2074	96.01	83	1991	2074	0	1991	0	2010
1	2010	96.41	72	1938	19	1919	19	4	20
2	19	75.00	5	14	1	13	1	0	1
3	2	50.00	1	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0
TOT	4106	96.05	162	3944	2094	1932	2012	0	4106

FISCAL YEAR 1997 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	75.00	0	1	1	0	1	0	22
1	22	93.81	1	21	21	0	21	1919	1942
2	1823	94.96	92	1731	2	0	1731	13	1747
3	1874	86.54	252	1622	3	1606	16	0	18
4	21	68.41	7	14	2	14	0	0	0
5	1	50.00	0	1	0	0	1	0	1
TOT	3742	90.59	352	3390	29	1706	1770	1932	3731

FISCAL YEAR 1997 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2	100.00	0	2	2	0	2	0	2
1	2	100.00	0	2	0	0	2	0	3
2	2	100.00	0	2	1	0	2	0	2
3	3	86.70	0	3	0	0	3	1606	1611
4	2020	85.50	293	1727	2	0	1727	14	1742
5	1951	88.60	222	1729	1	0	1729	0	1731
6	1975	84.80	300	1675	2	0	1675	0	1677
7	1793	79.20	373	1420	2	0	1420	0	1422
8	1406	85.40	205	1201	2	0	1201	0	1203
9	1366	93.00	96	1270	2	512	758	0	760

10	608	80.20	120	488	2	202	286	0	287
11	239	24.00	182	57	1	8	49	0	49
12	43	38.87	26	17	0	0	17	0	17
13	18	62.51	7	11	0	0	11	0	11
14	3	50.00	1	2	0	0	2	0	2
TOT	11431	84.03	1825	9606	17	720	8884	1706	10521

FISCAL YEAR 1997 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	1
4	2	100.00	0	2	0	0	2	0	3
5	2	100.00	0	2	1	0	2	0	3
6	3	100.00	0	3	1	0	3	0	4
7	5	83.33	1	4	1	0	4	0	6
8	7	100.00	0	7	2	0	7	0	10
9	26	95.95	1	25	3	0	25	512	540
10	552	96.25	21	531	3	0	531	202	736
11	1015	95.50	46	969	3	0	969	8	977
12	1027	94.50	56	971	0	0	971	0	971
13	864	96.25	32	832	0	14	818	0	818
14	793	96.25	30	763	0	482	281	0	281
15	382	90.50	36	346	0	5	341	0	341
16	191	90.50	18	173	0	0	173	0	173
17	184	91.50	16	168	0	0	168	0	168
18	191	82.50	33	158	0	0	158	0	158
19	165	15.00	140	25	0	0	25	0	25
20	28	5.00	27	1	0	0	1	0	1
21	2	0.00	2	0	0	0	0	0	0
TOT	5431	91.71	450	4981	14	501	4480	720	5216

FISCAL YEAR 1997 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	0	0	1	0	1
9	1	100.00	0	1	0	0	1	0	1
10	1	100.00	0	1	0	0	1	0	1
11	2	100.00	0	2	0	0	2	0	3
12	3	100.00	0	3	1	0	3	0	4
13	7	95.50	0	7	1	0	7	14	22
14	28	97.50	1	27	1	0	27	482	510
15	403	99.00	4	399	1	0	399	5	405
16	557	98.25	10	547	1	0	547	0	548
17	560	98.10	11	549	1	0	549	0	550
18	569	95.50	26	543	1	0	543	0	543
19	515	86.25	71	444	0	30	414	0	414
20	442	85.50	64	378	0	185	193	0	193
21	225	79.50	46	179	0	58	121	0	121
22	105	50.00	52	53	0	0	53	0	53
23	67	40.00	40	27	0	0	27	0	27
24	44	40.00	26	18	0	0	18	0	18
25	18	30.00	13	5	0	0	5	0	5
26	5	10.00	4	1	0	0	1	0	1
27	1	0.00	1	0	0	0	0	0	0
28	1	0.00	1	0	0	0	0	0	0
TOT	3555	89.59	370	3185	7	271	2912	501	3420

**** URL Officer Promotion Model ****

CURRENT YEAR (1998) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	4106	N/A	96.08	161	3945	2094		
O-2	3731	N/A	90.86	341	3390	29	2.00	95.00
O-3	10521	N/A	83.39	1748	8773	17	4.00	95.00
O-4	5214	5075	91.70	433	4781	14	10.39	70.00
O-5	3422	3320	89.63	355	3067	7	14.99	70.00
O-6	1625	1574	83.00	276	1349	0	21.06	50.00

FISCAL YEAR 1998 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2074	96.01	83	1991	2074	16	0	0.00	0	0	0
1	2010	96.41	72	1938	19	17	0	0.00	0	0	0
2	20	75.00	5	15	1	18	0	0.00	0	0	0
3	1	50.00	0	1	0	19	0	0.00	0	0	0
4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	0	0.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	4106	96.08	161	3945	2094

FISCAL YEAR 1998 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	75.00	0	1	1	16	0	0.00	0	0	0
1	22	93.81	1	21	21	17	0	0.00	0	0	0
2	1942	94.96	98	1844	2	18	0	0.00	0	0	0
3	1747	86.54	235	1512	3	19	0	0.00	0	0	0
4	18	68.41	6	12	2	20	0	0.00	0	0	0
5	0	50.00	0	0	0	21	0	0.00	0	0	0
6	1	0.00	1	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3731	90.86	341	3390	29

FISCAL YEAR 1998 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2	100.00	0	2	2	16	0	0.00	0	0	0
1	2	100.00	0	2	0	17	0	0.00	0	0	0
2	3	100.00	0	3	1	18	0	0.00	0	0	0
3	2	86.70	0	2	0	19	0	0.00	0	0	0
4	1611	85.50	234	1377	2	20	0	0.00	0	0	0
5	1742	88.60	199	1543	1	21	0	0.00	0	0	0
6	1731	84.80	263	1468	2	22	0	0.00	0	0	0
7	1677	79.20	349	1328	2	23	0	0.00	0	0	0
8	1422	85.40	208	1214	2	24	0	0.00	0	0	0
9	1203	93.00	84	1119	2	25	0	0.00	0	0	0
10	760	80.20	150	610	2	26	0	0.00	0	0	0
11	287	24.00	218	69	1	27	0	0.00	0	0	0
12	49	38.87	30	19	0	28	0	0.00	0	0	0
13	17	62.51	6	11	0	29	0	0.00	0	0	0
14	11	50.00	5	6	0	30	0	0.00	0	0	0
15	2	0.00	2	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	10521	83.39	1748	8773	17

FISCAL YEAR 1998 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	184	90.50	17	167	0
1	0	100.00	0	0	0	17	177	91.50	15	162	0
2	0	100.00	0	0	0	18	183	82.50	32	151	0
3	1	100.00	0	1	0	19	158	15.00	134	24	0
4	2	100.00	0	2	0	20	27	5.00	26	1	0
5	2	100.00	0	2	1	21	2	0.00	2	0	0
6	3	100.00	0	3	1	22	0	0.00	0	0	0
7	5	83.33	1	4	1	23	0	0.00	0	0	0
8	6	100.00	0	6	2	24	0	0.00	0	0	0
9	25	95.95	1	24	3	25	0	0.00	0	0	0
10	530	96.25	20	510	3	26	0	0.00	0	0	0
11	974	95.50	44	930	3	27	0	0.00	0	0	0
12	986	94.50	54	932	0	28	0	0.00	0	0	0
13	829	96.25	31	798	0	29	0	0.00	0	0	0
14	761	96.25	29	732	0	30	0	0.00	0	0	0
15	367	90.50	35	332	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5214	91.70	433	4781	14

FISCAL YEAR 1998 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	536	98.25	9	527	1
1	0	0.00	0	0	0	17	539	98.10	10	529	1
2	0	0.00	0	0	0	18	548	95.50	25	523	1
3	0	100.00	0	0	0	19	496	86.25	68	428	0
4	0	100.00	0	0	0	20	425	85.50	62	363	0
5	0	100.00	0	0	0	21	217	79.50	44	173	0
6	0	100.00	0	0	0	22	101	50.00	50	51	0
7	0	100.00	0	0	0	23	65	40.00	39	26	0
8	1	100.00	0	1	0	24	42	40.00	25	17	0
9	1	100.00	0	1	0	25	17	30.00	12	5	0
10	1	100.00	0	1	0	26	4	10.00	4	0	0
11	2	100.00	0	2	0	27	1	0.00	1	0	0
12	3	100.00	0	3	1	28	1	0.00	1	0	0
13	7	95.50	0	7	1	29	0	0.00	0	0	0
14	27	97.50	1	26	1	30	0	0.00	0	0	0
15	388	99.00	4	384	1						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3422	89.63	355	3067	7

FISCAL YEAR 1998 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2074	96.01	83	1991	2074	0	1991	0	2010
1	2010	96.41	72	1938	19	1919	19	0	20
2	20	75.00	5	15	1	13	2	0	2
3	1	50.00	0	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0
TOT	4106	96.08	161	3945	2094	1932	2013	0	4107

FISCAL YEAR 1998 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	1	75.00	0	1	1	0	1	0	22
1	22	93.81	1	21	21	0	21	1919	1942
2	1942	94.96	98	1844	2	0	1844	13	1860
3	1747	86.54	235	1512	3	1498	14	0	16
4	18	68.41	6	12	2	12	0	0	0
6	1	0.00	1	0	0	0	0	0	0
TOT	3731	90.86	341	3390	29	1590	1880	1932	3841

FISCAL YEAR 1998 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV

0	2	100.00	0	2	2	0	2	0	2
1	2	100.00	0	2	0	0	2	0	3
2	3	100.00	0	3	1	0	3	0	3
3	2	86.70	0	2	0	0	2	1498	1502
4	1611	85.50	234	1377	2	0	1377	12	1390
5	1742	88.60	199	1543	1	0	1543	0	1545
6	1731	84.80	263	1468	2	0	1468	0	1470
7	1677	79.20	349	1328	2	0	1328	0	1330
8	1422	85.40	208	1214	2	0	1214	0	1216
9	1203	93.00	84	1119	2	480	639	0	641
10	760	80.20	150	610	2	289	321	0	322
11	287	24.00	218	69	1	8	61	0	61
12	49	38.87	30	19	0	0	19	0	19
13	17	62.51	6	11	0	0	11	0	11
14	11	50.00	5	6	0	0	6	0	6
15	2	0.00	2	0	0	0	0	0	0
TOT	10521	83.39	1748	8773	17	776	7996	1590	9523

FISCAL YEAR 1998 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	1
4	2	100.00	0	2	0	0	2	0	3
5	2	100.00	0	2	1	0	2	0	3
6	3	100.00	0	3	1	0	3	0	4
7	5	83.33	1	4	1	0	4	0	6
8	6	100.00	0	6	2	0	6	0	9
9	25	95.95	1	24	3	0	24	480	507
10	530	96.25	20	510	3	0	510	289	802
11	974	95.50	44	930	3	0	930	8	938
12	986	94.50	54	932	0	0	932	0	932
13	829	96.25	31	798	0	45	753	0	753
14	761	96.25	29	732	0	447	285	0	285
15	367	90.50	35	332	0	5	327	0	327
16	184	90.50	17	167	0	0	167	0	167
17	177	91.50	15	162	0	0	162	0	162
18	183	82.50	32	151	0	0	151	0	151
19	158	15.00	134	24	0	0	24	0	24
20	27	5.00	26	1	0	0	1	0	1
21	2	0.00	2	0	0	0	0	0	0
TOT	5214	91.70	433	4781	14	496	4284	776	5075

FISCAL YEAR 1998 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	0	0	1	0	1
9	1	100.00	0	1	0	0	1	0	1
10	1	100.00	0	1	0	0	1	0	1
11	2	100.00	0	2	0	0	2	0	2
12	3	100.00	0	3	1	0	3	0	4
13	7	95.50	0	7	1	0	7	45	53
14	27	97.50	1	26	1	0	26	447	474
15	388	99.00	4	384	1	0	384	5	390
16	536	98.25	9	527	1	0	527	0	528
17	539	98.10	10	529	1	0	529	0	530
18	548	95.50	25	523	1	0	523	0	523
19	496	86.25	68	428	0	20	408	0	408
20	425	85.50	62	363	0	177	186	0	186
21	217	79.50	44	173	0	54	119	0	119
22	101	50.00	50	51	0	0	51	0	51
23	65	40.00	39	26	0	0	26	0	26
24	42	40.00	25	17	0	0	17	0	17
25	17	30.00	12	5	0	0	5	0	5
26	4	10.00	4	0	0	0	0	0	0
27	1	0.00	1	0	0	0	0	0	0
28	1	0.00	1	0	0	0	0	0	0
TOT	3422	89.63	355	3067	7	250	2816	496	3320

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CURRENT YEAR (1999) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	4107	N/A	96.06	162	3945	2094		
O-2	3841	N/A	90.78	354	3487	29	2.00	95.00
O-3	9523	N/A	82.96	1623	7900	17	4.00	95.00
O-4	5075	5065	91.68	422	4653	14	10.36	70.00
O-5	3320	3331	89.52	348	2972	7	14.93	70.00
O-6	1574	1580	83.00	268	1306	0	21.11	50.00

FISCAL YEAR 1999 O-1 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2074	96.01	83	1991	2074	16	0	0.00	0	0	0
1	2010	96.41	72	1938	19	17	0	0.00	0	0	0
2	20	75.00	5	15	1	18	0	0.00	0	0	0
3	2	50.00	1	1	0	19	0	0.00	0	0	0
4	1	0.00	1	0	0	20	0	0.00	0	0	0
5	0	0.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	4107	96.06	162	3945	2094

FISCAL YEAR 1999 O-2 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	1	75.00	0	1	1	16	0	0.00	0	0	0
1	22	93.81	1	21	21	17	0	0.00	0	0	0
2	1942	94.96	98	1844	2	18	0	0.00	0	0	0
3	1860	86.54	250	1610	3	19	0	0.00	0	0	0
4	16	68.41	5	11	2	20	0	0.00	0	0	0
5	0	50.00	0	0	0	21	0	0.00	0	0	0
6	0	0.00	0	0	0	22	0	0.00	0	0	0
7	0	0.00	0	0	0	23	0	0.00	0	0	0
8	0	0.00	0	0	0	24	0	0.00	0	0	0
9	0	0.00	0	0	0	25	0	0.00	0	0	0
10	0	0.00	0	0	0	26	0	0.00	0	0	0
11	0	0.00	0	0	0	27	0	0.00	0	0	0
12	0	0.00	0	0	0	28	0	0.00	0	0	0
13	0	0.00	0	0	0	29	0	0.00	0	0	0
14	0	0.00	0	0	0	30	0	0.00	0	0	0
15	0	0.00	0	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3841	90.78	354	3487	29

FISCAL YEAR 1999 O-3 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	2	100.00	0	2	2	16	0	0.00	0	0	0
1	2	100.00	0	2	0	17	0	0.00	0	0	0
2	3	100.00	0	3	1	18	0	0.00	0	0	0
3	3	86.70	0	3	0	19	0	0.00	0	0	0
4	1502	85.50	218	1284	2	20	0	0.00	0	0	0
5	1390	88.60	158	1232	1	21	0	0.00	0	0	0
6	1545	84.80	235	1310	2	22	0	0.00	0	0	0
7	1470	79.20	306	1164	2	23	0	0.00	0	0	0

8	1330	85.40	194	1136	2	24	0	0.00	0	0	0
9	1216	93.00	85	1131	2	25	0	0.00	0	0	0
10	641	80.20	127	514	2	26	0	0.00	0	0	0
11	322	24.00	245	77	1	27	0	0.00	0	0	0
12	61	38.87	37	24	0	28	0	0.00	0	0	0
13	19	62.51	7	12	0	29	0	0.00	0	0	0
14	11	50.00	5	6	0	30	0	0.00	0	0	0
15	6	0.00	6	0	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	9523	82.96	1623	7900	17

FISCAL YEAR 1999 O-4 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	179	90.50	17	162	0
1	0	100.00	0	0	0	17	172	91.50	15	157	0
2	0	100.00	0	0	0	18	178	82.50	31	147	0
3	1	100.00	0	1	0	19	154	15.00	131	23	0
4	2	100.00	0	2	0	20	26	5.00	25	1	0
5	2	100.00	0	2	1	21	2	0.00	2	0	0
6	3	100.00	0	3	1	22	0	0.00	0	0	0
7	5	83.33	1	4	1	23	0	0.00	0	0	0
8	6	100.00	0	6	2	24	0	0.00	0	0	0
9	24	95.95	1	23	3	25	0	0.00	0	0	0
10	516	96.25	19	497	3	26	0	0.00	0	0	0
11	948	95.50	43	905	3	27	0	0.00	0	0	0
12	960	94.50	53	907	0	28	0	0.00	0	0	0
13	807	96.25	30	777	0	29	0	0.00	0	0	0
14	741	96.25	28	713	0	30	0	0.00	0	0	0
15	357	90.50	34	323	0						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	5075	91.68	422	4653	14

FISCAL YEAR 1999 O-5 PREDICTED TOTALS

YOS	INV	RATE	LOSS	CONT	ACC	YOS	INV	RATE	LOSS	CONT	ACC
0	0	0.00	0	0	0	16	520	98.25	9	511	1
1	0	0.00	0	0	0	17	523	98.10	10	513	1
2	0	0.00	0	0	0	18	531	95.50	24	507	1
3	0	100.00	0	0	0	19	481	86.25	66	415	0
4	0	100.00	0	0	0	20	412	85.50	60	352	0
5	0	100.00	0	0	0	21	210	79.50	43	167	0
6	0	100.00	0	0	0	22	98	50.00	49	49	0
7	0	100.00	0	0	0	23	63	40.00	38	25	0
8	1	100.00	0	1	0	24	41	40.00	25	16	0
9	1	100.00	0	1	0	25	17	30.00	12	5	0
10	1	100.00	0	1	0	26	4	10.00	4	0	0
11	2	100.00	0	2	0	27	1	0.00	1	0	0
12	3	100.00	0	3	1	28	1	0.00	1	0	0
13	7	95.50	0	7	1	29	0	0.00	0	0	0
14	26	97.50	1	25	1	30	0	0.00	0	0	0
15	376	99.00	4	372	1						

	INVENTORY	RATE	LOSS	CONT	ACC
TOTAL	3320	89.52	348	2972	7

FISCAL YEAR 1999 O-1 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2074	96.01	83	1991	2074	0	1991	0	2010
1	2010	96.41	72	1938	19	1919	19	0	20
2	20	75.00	5	15	1	13	2	0	2
3	2	50.00	1	1	0	0	1	0	1
4	1	0.00	1	0	0	0	0	0	0
TOT	4107	96.06	162	3945	2094	1932	2013	0	4107

FISCAL YEAR 1999 O-2 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV

0	1	75.00	0	1	1	0	1	0	22
1	22	93.81	1	21	21	0	21	1919	1942
2	1942	94.96	98	1844	2	0	1844	13	1860
3	1860	86.54	250	1610	3	1595	15	0	17
4	16	68.41	5	11	2	10	1	0	1
TOT	3841	90.78	354	3487	29	1690	1882	1932	3843

FISCAL YEAR 1999 O-3 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
0	2	100.00	0	2	2	0	2	0	2
1	2	100.00	0	2	0	0	2	0	3
2	3	100.00	0	3	1	0	3	0	3
3	3	86.70	0	3	0	0	3	1595	1600
4	1502	85.50	218	1284	2	0	1284	10	1295
5	1390	88.60	158	1232	1	0	1232	0	1234
6	1545	84.80	235	1310	2	0	1310	0	1312
7	1470	79.20	306	1164	2	0	1164	0	1166
8	1330	85.40	194	1136	2	68	1068	0	1070
9	1216	93.00	85	1131	2	729	402	0	404
10	641	80.20	127	514	2	241	273	0	274
11	322	24.00	245	77	1	11	66	0	66
12	61	38.87	37	24	0	0	24	0	24
13	19	62.51	7	12	0	0	12	0	12
14	11	50.00	5	6	0	0	6	0	6
15	6	0.00	6	0	0	0	0	0	0
TOT	9523	82.96	1623	7900	17	1049	6851	1690	8473

FISCAL YEAR 1999 O-4 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
3	1	100.00	0	1	0	0	1	0	1
4	2	100.00	0	2	0	0	2	0	3
5	2	100.00	0	2	1	0	2	0	3
6	3	100.00	0	3	1	0	3	0	4
7	5	83.33	1	4	1	0	4	0	6
8	6	100.00	0	6	2	0	6	72	78
9	24	95.95	1	23	3	0	23	729	755
10	516	96.25	19	497	3	0	497	241	741
11	948	95.50	43	905	3	0	905	11	916
12	960	94.50	53	907	0	0	907	0	907
13	807	96.25	30	777	0	181	596	0	596
14	741	96.25	28	713	0	465	248	0	248
15	357	90.50	34	323	0	7	316	0	316
16	179	90.50	17	162	0	0	162	0	162
17	172	91.50	15	157	0	0	157	0	157
18	178	82.50	31	147	0	0	147	0	147
19	154	15.00	131	23	0	0	23	0	23
20	26	5.00	25	1	0	0	1	0	1
21	2	0.00	2	0	0	0	0	0	0
TOT	5075	91.68	422	4653	14	651	4000	1049	5063

FISCAL YEAR 1999 O-5 PREDICTED RESULT

YOS	INV	RATE	LOSS	CONT	ACC	P-OUT	NP	P-IN	ENDINV
8	1	100.00	0	1	0	0	1	0	1
9	1	100.00	0	1	0	0	1	0	1
10	1	100.00	0	1	0	0	1	0	1
11	2	100.00	0	2	0	0	2	0	3
12	3	100.00	0	3	1	0	3	0	4
13	7	95.50	0	7	1	0	7	181	189
14	26	97.50	1	25	1	0	25	465	491
15	376	99.00	4	372	1	0	372	7	380
16	520	98.25	9	511	1	0	511	0	512
17	523	98.10	10	513	1	0	513	0	514
18	531	95.50	24	507	1	0	507	0	507
19	481	86.25	66	415	0	76	339	0	339
20	412	85.50	60	352	0	172	180	0	180
21	210	79.50	43	167	0	54	113	0	113
22	98	50.00	49	49	0	0	49	0	49

23	63	40.00	38	25	0	0	25	0	25
24	41	40.00	25	16	0	0	16	0	16
25	17	30.00	12	5	0	0	5	0	5
26	4	10.00	4	0	0	0	0	0	0
27	1	0.00	1	0	0	0	0	0	0
28	1	0.00	1	0	0	0	0	0	0
TOT	3320	89.52	348	2972	7	299	2670	651	3330

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CURRENT YEAR (2000) CUMULATIVE TOTALS

RANK	BEGIN STRENGTH	END STRENGTH	EST RATE	EST LOSS	EST CONT	ACC	FP	OPP
O-1	0	N/A	0.00	0	0	0		
O-2	0	N/A	0.00	0	0	0	2.00	95.00
O-3	0	N/A	0.00	0	0	0	4.00	95.00
O-4	0	0	0.00	0	0	0	9.96	70.00
O-5	0	0	0.00	0	0	0	14.65	70.00
O-6	0	0	0.00	0	0	0	20.82	50.00

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